

# LANGUAGE CENTER

*Director:* Elizabeth Bernhardt

*Associate Director:* Joan Molitoris

*Assistant Director:* Patricia de Castries

## **African and Middle Eastern Languages**

*Senior Lecturer, Coordinator, and Minor Adviser:* Khalil Barhoum  
(Arabic Language and Literature)

*Lecturers:* Angaluki Muaka, Gallia Porat, Ramzi Salti, Vered Shemtov

## **Chinese Language**

*Associate Professor and Coordinator:* Chao Fen Sun (Asian Languages)

*Lecturers:* Marina Chung, Sik Lee Dennig, Nina Lin, Yu-hwa Liao  
Rozelle, Huazhi Wang, Hong Zeng, Qi Zhu

## **English for Foreign Students**

*Director and Senior Lecturer:* Philip Hubbard (Linguistics)

*Lecturers:* Carole Mawson, Constance Rylance, Carol Shabrami, Keli Yerian

## **French Language**

*Senior Lecturer:* Nelee Langmuir

*Lecturers:* Jane Dozer-Rabedeau, Sylvie Palumbo-Liu, Tanya Shashko,  
Kenric Tsethlikai (Coordinator), Guy-Cédric Werlings

## **German Language**

*Coordinator:* Elizabeth Bernhardt (Director, Language Center)

*Senior Lecturers:* William E. Petig, Kathryn Strachota (on leave Spring)

## **Italian Language**

*Senior Lecturers:* Maria Devine, Annamaria Napolitano (Coordinator)

*Lecturers:* Marta Baldocchi, Sara Gelmetti, Giovanni Tempesta

## **Japanese Language**

*Associate Professor and Coordinator:* Yoshiko Matsumoto (Asian Languages)

*Senior Lecturer:* Kazuko M. Busbin

*Lecturers:* Fumiko Arao (on leave Spring), Momoe Saito Fu, Hisayo O.  
Lipton (Deputy Coordinator), Momoyo K. Lowdermilk, Kiyomi  
Nakamura, Yoshiko Tomiyama

## **Korean Language**

*Lecturer and Coordinator:* Hee-Sun Kim

## **Portuguese Language**

*Senior Lecturer:* Lyris Wiedemann (Coordinator)

*Lecturer:* Ana Isabel Delgado

## **Slavic Language**

*Senior Lecturer and Coordinator:* Rima Greenhill

*Lecturer:* Serafima Gettys (on leave Autumn)

## **Spanish Language**

*Senior Lecturer:* Irene Corso

*Lecturers:* Diana García-Denson, Maitena Gorostazu, Candy Guzmán,  
Caridad Kenna, Alice Miano (Coordinator), Joan Molitoris  
(Associate Director, Language Center), Consuelo Perales, Ana M.  
Sierra, Karyn Schell, María Cristina Urruela, Hae-Joon Won, Ana  
Zaragoza

## **Special Language Program**

*Lecturer and Coordinator:* Eva Prionas (Modern Greek Language and Literature)

*Lecturer:* Cathy Haas

*Language Center Offices:* Building 30

*Mail Code:* 94305-2015

*Department Phone:* (650) 725-9222

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*Web Site:* <http://language.stanford.edu>

Courses given in the Language Center have one of the following subject codes: AMELANG, APPLING, CHINLANG, EFSLANG, FRENLANG, GERLANG, ITALLANG, JAPANLANG, KORLANG, PORTLANG, SLAVLANG, SPANLANG, and SPECLANG. For a complete list of subject codes, see Appendix.

The Stanford Language Center was created to oversee all language instruction at Stanford. The Center's charge is to guarantee that Stanford language programs are of the highest quality; to develop and administer achievement and proficiency tests needed to implement the language requirement; to provide technical assistance and support to the graduate students, lecturers, and faculty who deliver Stanford's language instruction; and to take leadership in research and development efforts in language learning. The Language Center is a unit within the Division of Literatures, Cultures, and Languages.

## **UNDERGRADUATE PROGRAM**

### **MINOR IN MIDDLE EASTERN LANGUAGES, LITERATURES, AND CULTURES**

The undergraduate minor in Middle Eastern Languages, Literatures, and Cultures has been designed to give students majoring in other departments an opportunity to gain a substantial introduction to the Arabic and Hebrew languages, as well as an introduction to the cultures and civilizations of the Middle East. Contact the minors adviser before declaring (khalil@stanford.edu).

Students declaring a minor must do so no later than the last day of the fourth quarter before degree conferral. For example, students graduating in June (Spring Quarter) must declare the minor no later than the last day of Spring Quarter of their junior year. If a student is not able to meet this deadline, he or she may petition the Language Center director and request a revised declaration date, which may be granted at the director's discretion.

The requirements for a minor in Middle Eastern Languages, Literatures, and Cultures are:

1. Completion of six courses in either Track A, Cultural Studies, or Track B, Language Studies.
2. Courses for the minor must be taken for a letter grade unless only offered for faculty-elected satisfactory/no credit.
3. All courses must be completed with a letter grade of 'C' or better.
4. Courses may not overlap with those taken for a major course of study.
5. Courses taken which also fulfill a GER count toward fulfilling both minor and GER requirements.
6. Students pursuing Track B, Language Studies, must complete the prerequisite of Beginning Arabic or Hebrew, or demonstrate equivalent competence.

### **CULTURAL STUDIES TRACK**

Requirements are:

1. Successful completion of the prerequisite, Beginning Arabic (or Hebrew), or a demonstrated equivalent competence.
2. Completion of three of the AME Program courses from Appendix A.
3. Completion of three courses from Appendix B, or two courses from Appendix B and one course from Appendix A and one from Appendix B.

*Course No. and Subject\**

<i>Course No. and Subject*</i>	<i>Units</i>
<b>Appendix A:</b>	
AMELANG 50. Reading Hebrew	4
AMELANG 127. Land and Literature	4
AMELANG 161. The Contemporary Arab World through Literature and Culture	4
AMELANG 162. Contemporary Arab Women Writers and Issues†	4
AMELANG 163. The Arab World through Travel Literature†	4
AMELANG 195A,B,C. Readings in Arabic Literature	2-4
<b>Appendix B:</b>	
HISTORY 187. Palestine, Zionism, and the Arab-Israeli Conflict	5
HISTORY 289C. Problems in the History of Zionism and the State of Israel	5

\* Consult minor adviser for more options.

† Units of course work earned from GER courses listed in the Language track and Cultural Studies track may be used to fulfill the unit requirements for the minor.

### **LANGUAGE TRACK**

Requirements are:

1. Successful completion of the prerequisite, Beginning Arabic (or Hebrew), or a demonstrated equivalent competence.

2. Completion of one year of language study at the intermediate level (AMELANG 121A,B,C for Arabic, or AMELANG 129A,B,C for Hebrew).
3. Completion of three courses from Appendix B.

## GRADUATE PROGRAM

### Ph.D. MINOR IN APPLIED LINGUISTICS

The Ph.D. minor in Applied Linguistics has been designed to give students the opportunity to examine and explore language as it pertains to teaching, learning, translation, education, and language policies.

The Ph.D. minor requires the completion of no less than 30 units of unduplicated course work. Course work must include LINGUIST 201 (Foundations of Linguistic Analysis, 4 units). At least one additional Linguistics course must also be taken. Courses taken for the minor must be incremental units beyond those used to satisfy the major (with the exception of Linguistics 201 for Linguistics students). At least 20 of the 30 units must be at the 200 level or above. Students may also supplement their Applied Linguistics training with an array of courses from the departments of Cultural and Social Anthropology, Linguistics, and Spanish and Portuguese.

Overlapping applied linguistics concentrations are available in Learning, Teaching, and Translation of Second Languages; and in Educational and Policy Applications of Linguistics.

Some suggested courses relevant to each track are listed below the track description; a more complete listing of courses which are appropriate for the minor can be found on the Language Center's web site at <http://language.stanford.edu/>.

Students in either track should develop a program of study in consultation with an academic adviser and submit the proposed program of study for approval by the Applied Linguistics Steering Committee.

### THE LEARNING, TEACHING, AND TRANSLATION OF SECOND LANGUAGES TRACK

This overall program concentration requires general reading in second language acquisition (SLA) and/or translation while offering students course work in the following areas:

1. Second language acquisition in instructed contexts
2. Elements of curricular design for university and college settings
3. The acquisition of second language literacy
4. The use of technology to enhance student performance
5. Linguistics and the teaching of foreign languages
6. Theoretical foundations in the translation of various languages

Course No. and Subject	Units
APPLING 201. The Learning and Teaching of Second Languages	3
APPLING 202. Workshop in Technology	3
APPLING 203/SPANLIT 300. Issues and Methods in the Teaching of Heritage Languages	3-5
LINGUIST 189/289. Linguistics and the Teaching of English as a Foreign Language	4-5
LINGUIST 140/240. Language Acquisition I	4

### EDUCATIONAL AND POLICY APPLICATIONS OF LINGUISTICS TRACK

This concentration is oriented toward a combination of conceptual and research foci regarding language minority populations and their educational welfare. The education of women, low-income, and language minority populations receive primary attention within this concentration.

Course No. and Subject	Units
EDUC 249. Theory and Issues in the Study of Bilingualism	3-4
EDUC 275. African American English in Educational Context	3-4
EDUC 277. Education of Immigrant Students: Psychological Perspectives	4
EDUC 289. Introduction to Linguistics for Educational Researchers	4
EDUC 335X. Language Policy and Planning: National and International Perspectives	3
EDUC 435X. Research Seminar in Applied Linguistics	2-4
LINGUIST 73/273. African American Vernacular English	4
LINGUIST 150. Language in Society	4-5
LINGUIST 159. Language in the U.S.	3-5
LINGUIST 250. Sociolinguistic Theory and Analysis	4-6

## COURSES

Offerings in this section are ordered as follows:

Applied Linguistics (APPLING)  
 African and Middle Eastern Languages (AMELANG)  
 Chinese (CHINLANG)  
 English for Foreign Students (EFSLANG)  
 French (FRENLANG)  
 German (GERLANG)  
 Italian (ITALLANG)  
 Japanese (JAPANLANG)  
 Korean (KORLANG)  
 Portuguese (PORTLANG)  
 Russian (SLAVLANG)  
 Spanish (SPANLANG)  
 Special Languages (SPECLANG)

Students interested in either general courses concerning languages, cultures, and literatures, or in advanced study of language and literature should consult the following departments and subject codes:

Asian Languages (CHINGEN, CHINLIT, JAPANGEN, JAPANLIT)  
 French and Italian (FRENGEN, FRENLIT, ITALGEN, ITALLIT)  
 German Studies (GERGEN, GERLIT)  
 Spanish and Portuguese (SPANLIT, PORTLIT)  
 Slavic Languages and Literatures (SLAVGEN, SLAVLIT)

### APPLIED LINGUISTICS (APPLING)

**APPLING 200. Teaching of Second Language Literatures**—(Same as GERLIT 200.) Focus is on literacy development in a second language, emphasizing literary texts, and assessing the learners' second-language linguistic level and requisite background knowledge with regard to particular literary texts. Instructional strategies and feedback techniques for written and oral work.

*3 units, Spr (Bernhardt)*

**APPLING 201. The Learning and Teaching of Second Languages**—(Same as GERGEN 201.) Teaching second languages from a learning perspective, rather than traditional teaching methods. Focus is on instructional decision making within the context of the students' intellectual and linguistic development in university settings to different populations. Readings in second language acquisition.

*3 units, Spr (Bernhardt)*

**APPLING 202. Workshop in Technology**—Focus is on technology-based applications for enhancing language learning. The latest developments in digital language assessment and the implications of word processing and internet technologies across multiple languages and character systems. Hands-on, project-based.

*3 units Spr (Kautz)*

**APPLING 203. Issues and Methods in the Teaching of Heritage Languages**—(Same as SPANLIT 300.) Teaching Spanish to students raised in Spanish-speaking homes. Issues include language variation in the Spanish-speaking world, English/Spanish bilingualism in the U.S., and second dialect acquisition. Techniques for developing the academic Spanish language skills of heritage students.

*3-5 units (Valdés) not given 2004-05*

**APPLING 297. Directed Reading**—See instructor for section number.

*1-4 units, Aut, Win, Spr (Staff)*

### AFRICAN AND MIDDLE EASTERN LANGUAGES AND LITERATURES (AMELANG)

The African and Middle Eastern Languages and Literatures Program offers a number of languages not otherwise taught at Stanford. Based on current funding and student requests, the courses planned for 2004-05 are listed below. Additional languages may still be offered upon request, provided funding is available. Requests for the 2005-06 academic year should be made by Spring Quarter of this year at the AME Program office, Building 40, Room 42B.

All beginning-level, three-unit courses are offered on a S/NC basis only. Intermediate-level and four-unit courses are offered with a grading option. Beginning and intermediate each refer to an academic year's sequence of language study. Most three-unit language courses are offered for a two-year, three quarter sequence:

All 'A' suffix courses are taught Autumn.

All 'B' suffix courses are taught Winter.

All 'C' suffix courses are taught Spring.

All beginning courses are 3 units except modern Greek and ASL.

All intermediate and advanced courses are 3 units except modern Greek and ASL. In some circumstances, a beginning or intermediate course may be offered on alternate years.

*Fulfilling the language requirement*

You can fulfill the language requirement by taking an African or Middle Eastern language. You will need at least 12 units, to complete your requirement.

If you have already taken courses in the relevant language at another institution, or if you have previous knowledge of the language, you can request to be tested.

Tests are comprised of two parts, written and oral. You must display first-year level proficiency in the requested language in order to fulfill the requirement.

Testing is guaranteed only for those languages that are currently offered. If you are planning to take a test, you must contact the AME program no later than the Spring Quarter of your sophomore year.

To submit a request for language testing, or to request a language, apply via the web at <http://www.stanford.edu/dept/lc/MEL/>.

For further information consult the AME Program, Building 40, Room 42B, or <http://www.stanford.edu/dept/lc/MEL/>.

## AFRICAN LANGUAGES COURSES

### AMELANG 100A,B,C. Beginning Amharic

3 units, A: Aut, B: Win, C: Spr (Staff)

### AMELANG 101A,B,C. Intermediate Amharic

3 units, A: Aut, B: Win, C: Spr (Staff)

### AMELANG 102A,C. Advanced Amharic

3 units, A: Aut, C: Spr (Staff)

### AMELANG 106A,B,C. Beginning Swahili

4 units, A: Aut, B: Win, C: Spr (Muaka)

### AMELANG 107A,B,C. Intermediate Swahili

2-4 units, A: Aut, B: Win, C: Spr (Muaka)

### AMELANG 108A,B,C. Advanced Swahili

2-4 units, A: Aut, B: Win, C: Spr (Muaka)

### AMELANG 117A,B,C. Beginning Shona

3 units, A: Aut, B: Win, C: Spr (Staff)

### AMELANG 133A,B,C. The African Forum

1 unit A: Aut, B: Win, C: Spr (Muaka)

### AMELANG 134A,B,C. Beginning Igbo

3 units, A: Aut, B: Win, C: Spr (Staff)

### AMELANG 147A,B,C. Beginning Bambara

3 units, A: Aut, B: Win, C: Spr (Staff)

### AMELANG 148A,B,C. Intermediate Bambara

3 units, A: Aut, B: Win, C: Spr (Staff)

### AMELANG 149A,B,C. Advanced Bambara

3 units, A: Aut, B: Win, C: Spr (Staff)

### AMELANG 153A,B,C. Beginning Twi

3 units, A: Aut, B: Win, C: Spr (Staff)

### AMELANG 154A,B,C. Intermediate Twi

3 units, A: Aut, B: Win, C: Spr (Staff)

### AMELANG 186A,B,C. Beginning Yoruba

3 units, A: Aut, B: Win, C: Spr (Staff)

## MIDDLE EASTERN LANGUAGES COURSES

**AMELANG 50A. Reading Hebrew**—Introduction to Hebrew literature through short stories and poetry by notable Israeli writers. In Hebrew. Prerequisite: one year of Hebrew or equivalent.

2-4 units (Staff) not given 2004-05

### AMELANG 120A,B,C. Beginning Arabic

5 units, A: Aut, B: Win, C: Spr (Barhoum, Salti)

### AMELANG 121A,B,C. Intermediate Arabic

2-5 units, A: Aut, B: Win, C: Spr (Salti)

### AMELANG 122A,B,C. Advanced Arabic

2-5 units (Salti) not given 2004-05

**AMELANG 127. Land and Literature**—Israel has captured the imagination of writers throughout the generations. It has been portrayed as promised land, holy land, homeland, empty land, occupied land, and land of dreams. Ideological views and political events have shaped writers' conception of Israel. Readings include poems and prose by Hebrew/Israeli authors in translation, and theoretical texts about place and literature. No knowledge of Hebrew required. GER:3a,4a

4 units, Win (Shemtov)

### AMELANG 128A,B,C. Beginning Hebrew

4 units, A: Aut, B: Win, C: Spr (Shemtov)

### AMELANG 129A,B,C. Intermediate Hebrew

2-4 units, A: Aut (Shemtov), B: Win, C: Spr (Porat)

### AMELANG 130A,B,C. Advanced Hebrew

1-4 units, A: Aut, B: Win (Porat) C: Spr (Shemtov)

**AMELANG 131. Hebrew Forum**—Intermediate level. Weekly Hebrew discussion on contemporary issues. Vocabulary enhancement.

2 units (Shemtov) not given 2004-05

**AMELANG 161. The Contemporary Arab World and Culture through Literature**—Introduces the Arab world through a survey of literary genres including novels, short stories, and poetry, providing a glimpse of contemporary Arab society and culture. Readings from prominent authors, dealing with dominant cultural topics such as gender and women, kinship and social concepts, nationalism, and religion. Texts delineating the cultural uniqueness of the Arab world include works by Naguib Mahfouz, Nawal El-Saadawi, Ghassan Kanafani, Tayyeb Salih, Etel Adnan, and short stories and poetry. No knowledge of Arabic required; extra unit for readings in Arabic. Limited enrollment. GER:3a,4a

4-5 units, Aut (Barhoum)

**AMELANG 162. Arab Women Writers and Issues**—Fiction and non-fiction works by prominent Arab women writers, with analysis of the main cultural factors contributing to the shaping of their dominant feminist conceptions and attitudes. Readings: Fatima Mernissi, Nawal El Saadawi, Etel Adnan, Hanan al-Shaykh, Alifa Rifaat, and Sahar Khalifeh. No knowledge of Arabic required; extra unit for readings in Arabic. Limited enrollment. GER:3a,4c

4-5 units, Win (Barhoum)

**AMELANG 163. The Arab World through Travel Literature**—Western colonialist and postcolonialist portrayals of Arab culture and recent critical examinations of stereotypical depictions of Arabs and Islam. Readings include Flaubert in Egypt, Guests of the Sheik, Justine, Covering Islam, Nine Parts of Desire, and Motoring with Mohammed. No knowledge of Arabic required; extra unit for readings in Arabic. Limited enrollment GER:3a,4a

4-5 units, Spr (Barhoum)

**AMELANG 170A,B,C. Biblical Hebrew**—The basic lexicon and grammar of Hebrew of the Tanakh or Old Testament. Emphasis is on learning to read original Biblical materials.

1-4 units, A: Aut (Staff), B: Win (Porat), C: Spr (Porat, Staff)

**AMELANG 195A,B,C. Readings in Arabic Literature**—Introduction to Arabic literature through short stories, poetry, literary criticism, Islamic texts, essays, and prose by notable Arab writers. Readings in Arabic. Prerequisite: two years of Arabic, native speaker, or equivalent.

2-4 units, **A: Aut, B: Win, C: Spr (Salti)**

**AMELANG 297. Directed Reading**—Prerequisite: consent of instructor.

1-4 units, **Aut, Win, Spr, Sum (Staff)**

**AMELANG 395. Graduate Studies in African and Middle Eastern Languages**—Prerequisite: consent of instructor.

1-5 units, **Aut, Win, Spr (Staff)**

## CHINESE LANGUAGE COURSES

### FIRST- AND SECOND-YEAR LANGUAGE

Students registering for the first time in a first- or second-year course must take a placement test if they have had any training in Chinese before entering Stanford. All entering students must take Part I (written) of the placement test online during the summer, followed by Part II (oral), to be administered on campus September 22, 2004. Consult the Language Center or <http://language.stanford.edu/> for further information.

**CHINLANG 1,2,3. First-Year Modern Chinese**—Conversation, grammar, reading, elementary composition. Daily sections may be set at the beginning of the quarter to suit schedule requirements.

5 units, **1: Aut, 2: Win, 3: Spr (Zeng, Staff)**

**CHINLANG 1B,2B,3B. First-Year Modern Chinese for Bilingual Students**—For students with elementary comprehension and speaking skills who need work on conversation, grammar, reading, and composition.

3 units, **1B: Aut, 2B: Win, 3B: Spr (Rozelle, Lin)**

**CHINLANG 5. Intensive First-Year Modern Chinese**—(Graduate students register for 5A.) Equivalent to 1,2,3 combined. Five weeks at Stanford and four weeks at Peking University.

8 units, **Sum (Staff)**

**CHINLANG 6,7,8. Beginning Conversational Chinese**—Three quarter sequence equips students with basic language skills in Mandarin to function abroad.

2 units, **6: Aut, 7: Win, 8: Spr (Rozelle, Staff)**

**CHINLANG 10,11,12. Beginning Southern Min (Taiwanese) Conversation**—Three quarter sequence equips students with the basic language skills needed in everyday life situations.

2 units, **10: Aut, 11: Win, 12: Spr (Lin)**

**CHINLANG 15,16,17. Beginning Cantonese Conversation**—Three quarter sequence equips students with the basic language skills needed in everyday life situations.

2 units, **15: Aut, 16: Win, 17: Spr (Dennig)**

**CHINLANG 18,19,20. Intermediate Cantonese Conversation**—Continuation of CHINLANG 17.

2 units, **18: Aut, 19: Win, 20: Spr (Dennig)**

**CHINLANG 20A,B,C. Advanced Cantonese Conversation**—Improving Cantonese through Hong Kong movies.

2 units, **A: Aut, B: Win, C: Spr (Dennig)**

**CHINLANG 21,22,23. Second-Year Modern Chinese**—Further study in grammar, reading, conversation, composition. Daily sections may be set at the beginning of the quarter to suit schedule requirements. Prerequisite: 3 or equivalent.

5 units, **21: Aut, 22: Win, 23: Spr (Chung)**

**CHINLANG 21B,22B,23B. Second-Year Modern Chinese for Bilingual Students**—For students with advanced comprehension and speaking skills, but lacking equivalent knowledge of grammar, reading, and writing Chinese characters. Equivalent to 21,22,23.

3 units, **21B: Aut, 22B: Win, 23B: Spr (Zhu)**

**CHINLANG 25. Intensive Second-Year Modern Chinese**—(Graduate students register for 25A.) Equivalent to 21,22,23 combined. Five weeks at Stanford and four weeks at Peking University. Prerequisite: 3 or equivalent.

8 units, **Sum (Staff)**

**CHINLANG 27,28,29. Intermediate Chinese Conversation**—Prerequisite: 3 or consent of instructor.

2 units, **27: Aut, 28: Win, 29: Spr (Staff)**

**CHINLANG 99. Language Specials**—Prerequisite: consent of instructor.

1-5 units, **Aut, Win, Spr (Staff)**

### ADVANCED LANGUAGE

**CHINLANG 101,102,103. Third-Year Modern Chinese**—Goal is to further communicative ability in Chinese through contact with written and spoken styles of modern Chinese. Reading and discussion of authentic writings on cultural topics; newspaper reports, radio, and TV broadcasts and films; online Chinese software and email network to facilitate study. Prerequisite: 23 or equivalent.

5 units, **101: Aut, 102: Win, 103: Spr (Wang)**

**CHINLANG 101B,102B,103B. Third-Year Modern Chinese for Bilingual Students**—For students with advanced listening and speaking abilities, but lacking equivalent knowledge in reading and writing. Equivalent of 101,102,103.

3 units, **101B: Aut, 102B: Win, 103B: Spr (Wang)**

**CHINLANG 105. Intensive Third-Year Modern Chinese**—(Graduate students register for 105A.) Equivalent to 101,102,103 combined. Five weeks at Stanford and four weeks at Peking University. Prerequisite: 23 or equivalent.

8 units, **Sum (Staff)**

**CHINLANG 121,122,123. Advanced Chinese Conversation**—Prerequisite: 23 or equivalent.

2 units, **121: Aut, 122: Win, 123: Spr (Chung)**

**CHINLANG 131,132,133. Business Chinese**—Commercial, economic, and business-related vocabulary. Materials include formal business conversations, newspaper and journal articles, and TV news on trade and economic. Technical language and business etiquette. Student oral and written reports on their own research regarding recent economic developments, using sources in China. Prerequisite: 23 or equivalent.

3-4 units, **131: Aut, 132: Win, 133: Spr (Wang)**

**CHINLANG 200. Directed Reading**—Prerequisite: consent of instructor.

1-5 units, **Aut, Win, Spr (Staff)**

**CHINLANG 211,212,213. Advanced Modern Chinese**—Year-long sequence. Goal is to become functional speakers, readers, and writers of modern Chinese through articles and essays from newspapers, magazines, scholarly journals, and the Internet. Cultural and social science themes: students may take both themes for 5 units or one theme for reduced units. Prerequisite: three years of Chinese language.

2-5 units, **211: Aut, 212: Win, 213: Spr (Zhu)**

**CHINLANG 221,222,223. Advanced Modern Chinese for Social Sciences Students**—Goal is to become functional speakers, readers, and writers of modern Chinese through articles, essays, newspapers, magazines, and scholarly journals in social sciences. Prerequisite: three years of Chinese.

3 units, **221: Aut, 222: Win, 223: Spr (Staff)**

**CHINLANG 394. Graduate Studies in Chinese Conversation**—Prerequisite: consent of instructor.

1-3 units, **Aut, Win, Spr (Staff)**

**CHINLANG 395. Graduate Studies in Chinese**—Prerequisite: consent of instructor.

2-5 units, **Aut, Win, Spr (Staff)**

## ENGLISH FOR FOREIGN STUDENTS

These courses, numbered from 690-698, represent offerings for non-native speakers in Autumn, Winter, and Spring quarters. Enrollment in one or more courses may be required of, or recommended to, current graduate students from other countries after they have taken the English placement examination. To enroll, students must go to <http://www.stanford.edu/group/efs> for directions on or before the first day of each quarter.

During the Summer Session, courses in spoken and written English are offered. Two six-week intensive courses are also offered during the summer. Summer visitors must apply directly to the EFS program.

**EFSLANG 690A. Interacting in English**—Strategies for effective one on one interaction. Emphasis is on functional language, including active listening, asking questions, and building working relationships. Activities include simulation and discussion, with feedback on pronunciation, grammar, and usage.

*1-3 units, Aut, Win (Yerian)*

**EFSLANG 690B. Academic Discussion**—The refinement and practice of discussion skills, with attention to pronunciation, grammar, and appropriateness for specific tasks. Preparation for effective participation in the classroom and research group communication. Detailed feedback on pronunciation, grammar, and usage. Prerequisite: 693A or consent of instructor.

*1-3 units, Aut, Win, Spr, Sum (Rylance, Staff)*

**EFSLANG 691. Oral Presentation**—For advanced graduate students. Practice in academic presentation skills; strategy, design, organization, and use of visual aids. Focus is on improving fluency and delivery style, with videotaping for extensive feedback on language accuracy and usage. Prerequisite: 695A or consent of instructor.

*1-3 units, Aut, Win, Spr, Sum (Yerian, Staff)*

**EFSLANG 692. Speaking and Teaching in English**—For non-native speakers who must teach in English. Focus is on developing clarity, intelligibility, and effectiveness through weekly presentations simulating actual teaching assistant responsibilities.

*1-3 units, Aut, Win, Spr, Sum (Rylance, Staff)*

**EFSLANG 693A. Listening Comprehension**—Strategies for effective listening in an academic setting, focusing on identifying key ideas in lectures. Practice in understanding words and phrases commonly encountered in classroom settings. Work with computer-based exercises promotes comprehension of rapid, natural speech.

*1-3 units, Aut (Staff)*

**EFSLANG 693B. Listening and Communication**—The development of listening strategies and vocabulary for understanding English in a variety of academic and non-academic contexts. Discussion and interpretation improve comprehension of communicative intent. Computer-based and video exercises, plus an individual project. Prerequisite: 693A or consent of instructor.

*1-3 units, Aut, Win, Spr (Shabrami, Staff)*

**EFSLANG 694. Communication Strategies in Professional Life**—For advanced graduate students. Task-based practice of language appropriate for professional settings in industry and related teamwork. Simulation of the roles of manager, applicant, subordinate, and coworker. Prerequisite: 693A, or consent of instructor.

*1-3 units, Win, Spr (Shabrami)*

**EFSLANG 695A. Pronunciation and Intonation**—Recognition and practice of American English sounds, stress, and intonation patterns for greater comprehension and intelligibility. Analysis of problem areas. Biweekly tape assignments and tutorials.

*1-3 units, Aut, Win, Spr, Sum (Mawson, Staff)*

**EFSLANG 695B. Advanced Pronunciation and Intonation**—Continuation of 695A, focusing on American English sounds, stress, rhythm, and intonation patterns. Emphasis is on self-monitoring, integrated with short presentations. Biweekly tape assignments and tutorials. Prerequisite: 695A.

*1-3 units, Aut, Win, Spr, Sum (Mawson)*

**EFSLANG 698A. Writing Academic English**—Preparation of graduate students to write academic papers; emphasis is on fluency, organization, documentation, and appropriateness for specific writing tasks required in course work.

*1-3 units, Aut, Win, Spr, Sum (Elliot, Shabrami, Rylance, Staff)*

**EFSLANG 698B. Advanced Graduate Writing**—For graduate students experienced in English writing and currently required to write for courses and research. Class meetings and frequent individual conferences. Prerequisite: 698A.

*1-3 units, Aut, Win, Spr, Sum (Hubbard, Staff)*

## FRENCH LANGUAGE COURSES

### FIRST- AND SECOND-YEAR FRENCH

Students registering for the first time in a first- or second-year course must take a placement test if they had any training in French before entering Stanford. All entering students must take Part I (written) of the placement test online during the summer, followed by Part II (oral), to be administered on campus September 22, 2004. Consult the Language Center or <http://language.stanford.edu/> for further information.

Basic French grammar and vocabulary are covered in French 1, 2, and 3. At the completion of 3, students will have acquired beginning-level functional proficiency in listening comprehension, speaking, reading, and writing in satisfaction of the University foreign language requirement. Students may continue with second-year French courses (22 or 23) or higher level courses upon recommendation of the coordinator.

**FRENLANG 1,2,3. First-Year French**—Basic communicative skills using all-in-French, student-centered approach. Emphasis is on the development of authentic discourse through French texts and videos. Cultural context. Language lab, multimedia, and computer facilities.

*5 units, Aut, Win, Spr (Dozer-Rabedeau, Staff)*

**FRENLANG 5A,B. Intensive First-Year French**—Completes first-year language sequence in two rather than three quarters. Recommended for students with previous knowledge of French who place into 5A on the placement test. Others should take the regular sequence (1,2,3). 5B fulfills the University foreign language requirement. Prerequisite: French placement test and consent of instructor.

*5 units, A: Aut, Win, B: Win, Spr (Shashko)*

**FRENLANG 10. First-Year French Conversation**—French conversation for students who have completed 2 or equivalent. Emphasis is on the development of authentic discourse. May be repeated once for credit.

*2 units, Aut, Win, Spr (Langmuir)*

**FRENLANG 15. French in Everyday Life**—Second-year French. Topics include family, student life, films, theater, fashion, food, and politics.

*2 units, Aut, Win, Spr (Langmuir)*

**FRENLANG 15S. Intermediate Conversation: French in Everyday Life**—Same content as 15. Prerequisite: one year of college French or equivalent.

*2 units, Sum (Staff)*

**FRENLANG 20A. France and Francophonie**—Second-year French conversation based on themes from the regions of France and the Francophone world. Topics include travel, food, and crosscultural comparisons. Students returning from study abroad programs are encouraged to enroll. Prerequisite: 3 or equivalent.

*2 units, Aut (Werlings)*

**FRENLANG 20B. French Cinema**—Second-year French conversation based on films. Emphasis is on speaking proficiency. Themes include: French filmmakers, stars, and trends. Film viewing in and outside the class in French. Prerequisite: 3 or equivalent.

*2 units, Win (Werlings)*

**FRENLANG 20C. Contemporary French Language**—Second-year French conversation for formal and informal situations. Useful for students planning to travel or study abroad. Prerequisite: 3 or equivalent.

*2 units, Spr (Werlings)*

**FRENLANG 22. Second-Year French, Part A**—Content-based. Integrates culture and language in the development of authentic discourse. Present and past narration, direct and indirect object pronouns, and pronominal verbs. Combines the study of grammar with discussion of French and Francophone texts. Language lab, multimedia, and computer facilities. Satisfies the foreign language requirement for students majoring in English. Prerequisite: 3 or equivalent, or consent of coordinator.  
*4-5 units, Aut, Win, Spr (Tsethlikai, Shashko, Staff)*

**FRENLANG 23. Second-Year French, Part B**—Continuation of French 22. Content-based. Future, conditional, and subjunctive. Combines the study of grammar with discussion of French and Francophone texts. Language lab, multimedia, and computer facilities. Prepares students for advanced courses and for study abroad. Satisfies the foreign language requirement for students majoring in International Relations. Prerequisite: 22 or equivalent, or consent of coordinator.  
*4-5 units, Aut, Win, Spr (Dozer-Rabedeau, Tsethlikai)*

**FRENLANG 41A,B. Intensive First-Year French**—Accelerated. All essential grammar. All-in-French, student-centered method. Written exercises, compositions, conversational practice, and daily work in the language lab. Stanford graduate students restricted to 9 units register for 241A,B.  
*5-10 units, Sum (Staff)*

**FRENLANG 50. Reading French**—For graduate students or seniors seeking to meet the University reading requirement for advanced degrees. No previous knowledge of French required.  
*4 units, Aut (Tsethlikai)*

**FRENLANG 50S. Reading French**—Same content as 50.  
*2-4 units, Sum (Staff)*

### MAISON FRANÇAISE

Other in-house courses may be announced.

**FRENLANG 60A. Beginning French Conversation**—(AU)  
*1 unit, Aut (Staff)*

**FRENLANG 60B. Intermediate French Conversation**—(AU)  
*1 unit, Win (Staff)*

**FRENLANG 60C. Intermediate/Advanced French Conversation**—(AU)  
*1 unit, Spr (Staff)*

**FRENLANG 60D. French Viticulture**—(AU)  
*1 unit, Aut, Win, Spr (Staff)*

**FRENLANG 60E. French Cooking**  
*1 unit, Aut, Win, Spr (Staff)*

**FRENLANG 60F. Filmmaking**—(AU)  
*1 unit, Aut (Staff)*

**FRENLANG 60G. French Poetry**—(AU)  
*1 unit (Staff) not given 2004-05*

**FRENLANG 60H. French Music**—(AU)  
*1 unit (Staff) not given 2004-05*

**FRENLANG 60K. Thought for the 21st Century**—(AU)  
*1 unit (Staff) not given 2004-05*

**FRENLANG 60L. Appreciating French Painting**—(AU)  
*1 unit (Staff) not given 2004-05*

**FRENLANG 60M. Current French Comedy**—(AU)  
*1 unit, by arrangement (Staff)*

**FRENLANG 60T. Teaching French Conversation**—(AU)  
*1 unit, Aut, Win, Spr (Staff)*

**FRENLANG 110. French and Francophone Cultures**  
*2 units, Spr (Staff)*

### ADVANCED FRENCH

**FRENLANG 120. Advanced Conversation: France Today**—Third-year conversation. Contemporary issues and topics of general interest. May be repeated for credit after two quarters. Prerequisite: 23 or equivalent.  
*3 units, Aut, Win, Spr (Werlings)*

**FRENLANG 121. Introduction to French Texts**—Content-based. Major literary figures and themes from medieval times to the present. Prerequisite: 23 or equivalent, or consent of coordinator.  
*3-4 units, Aut (Palumbo-Liu)*

**FRENLANG 122. Introduction to French Culture and Civilization**—Content-based. French art, geography, history, political change, and social institutions. Prerequisite: 23 or equivalent.  
*3-4 units (Staff) alternate years, given 2005-06*

**FRENLANG 123. French Creative Writing**—Creative writing as communication and literature. Model texts introduce students to genres and styles; review of grammar and vocabulary. Discussion of original writing by students. Prerequisite: 23 or equivalent. WIM  
*3-4 units (Staff) alternate years, given 2005-06*

**FRENLANG 124. Advanced French Grammar**—For majors and other students who plan to enroll in advanced courses. Individual work in the language lab with class time on contextualized activities and textual analysis. Prerequisite: 23 or equivalent.  
*3-4 units, Win (Staff)*

**FRENLANG 125. French Phonetics**—For majors and other students who plan to enroll in advanced courses. Study and practice of the French language sound system. Designed to improve students' ability to speak French. Language lab, multimedia, and computer facilities. Prerequisite: 23 or equivalent.  
*3-4 units, Spr (Palumbo-Liu)*

**FRENLANG 199. Language Specials**—Prerequisite: consent of instructor.  
*1-5 units, Aut, Win, Spr, Sum (Staff)*

**FRENLANG 394. Graduate Studies in French Conversation**—Prerequisite: consent of the instructor.  
*1-3 units, Aut, Win, Spr (Staff)*

**FRENLANG 395. Graduate Studies in French**—Prerequisite: consent of instructor.  
*2-5 units, Aut, Win, Spr (Staff)*

### GERMAN LANGUAGE COURSES

Students registering for the first time in a first- or second-year course must take a placement test if they had any training in German before entering Stanford. All entering students must take Part I (written) of the placement test online during the summer, followed by Part II (oral), to be administered on campus September 22, 2004. Consult the Language Center or <http://language.stanford.edu/> for further information.

#### FIRST-YEAR GERMAN

**GERLANG 1,2,3. First-Year German**—Speaking, reading, writing, and listening to German. Authentic materials. Interactive approach with emphasis on developing communicative expression. Introduction to the cultural context in which German is spoken.  
*5 units, 1,2: Aut, Win (Petig, Strachota), 3: Spr (Staff)*

**GERLANG 4A,B. Accelerated First-Year German**—Completes first-year language sequence in two rather than three quarters. Recommended for students with some previous knowledge of German but open to all students. 4B fulfills the University foreign language requirement.  
*5 units, 4A: Win, 4B: Spr (Staff)*

**GERLANG 5A,B. Intensive First-Year German**—Equivalent of 1,2,3 combined. Stanford graduate students restricted to 9 units register for 205A,B.  
*5-10 units, Sum (Staff)*

**GERLANG 10. Elementary German for Seniors and Graduate Students**—Intensive. For students who need to acquire reading ability in German for the Ph.D. and/or for advanced research in their own field.

*3-4 units, Win, Sum (Petig)*

**GERLANG 11P. Individually Programmed Beginning German**—For those who wish to complete more or fewer than 5 units a quarter, have scheduling conflicts, or prefer to work independently. Self-paced work on text and tapes; instructor available for consultation on a regular basis. 3-unit minimum for beginners. Conversational practice available for additional unit.

*1-12 units, Aut, Win (Strachota), Spr (Petig)*

## INTERMEDIATE GERMAN

At this level, students have several options depending on their interests. After completing 3 or equivalent, students may enroll directly in courses at the 120 level which consider special topics in German culture while encouraging additional language learning. Alternatively, 21,22 emphasize a systematic review of the language, while 21W,22W study the language of business and international relations, and 100-level courses develop advanced language skills along with cultural awareness.

**GERLANG 21. Intermediate German I**—Review of grammatical structures, vocabulary building, and listening comprehension. Introduction to *Landeskunde* through readings and discussions of short expository texts, fictional texts, and videos. Frequent short writing assignments.

*3-4 units, Aut (Petig)*

**GERLANG 21S. Intermediate German**—Readings in German, and a review of German structure. Discussions in German on readings and topics of current interest. Written exercises and compositions, oral reports, videos. Prerequisite: one year of college German or minimum of two years in high school.

*4 units, Sum (Petig)*

**GERLANG 21W. Intermediate German I: German for Business and International Relations**—Equivalent to 21, but focus is on business and the political and economic geography of Germany. Audiotapes and videos. For students planning to do a business internship in a German-speaking country. Prerequisite: 3.

*4 units, Aut (Petig)*

**GERLANG 22. Intermediate German II**—Continuation of 21, with greater emphasis on reading and writing skills. Literary texts of major 20th-century writers in historical context.

*4 units, Win (Petig)*

**GERLANG 22W. Intermediate German II: German for Business and International Relations**—Equivalent to 22, but continuation of 21W. Recommended for students planning to do a business internship in a German-speaking country. Prerequisite: 21 or 21W.

*3-4 units (Petig) not given 2004-05*

**GERLANG 52. Readings in Humanities**—For undergraduates and graduate students with a knowledge of German who want to acquire reading proficiency. Readings from scholarly works and professional journals. Recommended for students who need to pass the Ph.D. reading exam. Prerequisite: one year of German, or 10, or equivalent.

*3-4 units, Spr (Petig)*

**GERLANG 99. Language Specials**—Prerequisite: consent of instructor.

*1-12 units, Aut, Win, Spr, Sum (Staff)*

## ADVANCED GERMAN

**GERLANG 100. Hundert Deutsche Jahre: One Hundred German Years**—Hones German language skills while introducing the history and culture of Germany as experienced by ordinary people over the course of the 20th century. Themes include Germans and democracy, money, Hitler, books, the Wall, and food. Video series, parallel readings, discussion in German. Extra listening, reading, or speaking for fourth unit.

*3-4 units (Strachota) not given 2004-05*

**GERLANG 101. Advanced Language Study I**—Short fictional and expository readings, discussions, compositions. Review of grammatical structures. Vocabulary building with emphasis on common idiomatic expressions and troublesome lexical distinctions.

*3-4 units, Aut (Staff)*

**GERLANG 102. Advanced Language Study II**—Continuation of 101.

*3-4 units, Spr (Staff)*

**GERLANG 105. Advanced Business German**—For students planning to work in a German-speaking country and for preparation of the International Business German exams. Case studies of typical business situations with accompanying videos, listening comprehension exercises, and class simulations. Business correspondence and reports in German. Prerequisite: 22 or equivalent.

*4 units, Spr (Petig)*

**GERLANG 110. German Newspapers**—For intermediate and advanced students. Read and discuss three articles a week from current newspapers and magazines, practice reading comprehension strategies with online news updates, and develop vocabulary. Writing practice if desired.

*3-4 units, Aut (Strachota)*

**GERLANG 111. Television News from Germany**—For intermediate and advanced students. Watch and discuss current news reports and features. Build listening comprehension and vocabulary. Extra listening, speaking, or writing practice for fourth unit.

*3-4 units, Win (Strachota)*

**GERLANG 199. Individual Reading**—Prerequisite: consent of instructor.

*1-4 units, Aut, Win, Spr, Sum (Staff)*

**GERLANG 395. Graduate Studies in German**—Prerequisite: consent of instructor.

*2-5 units, Aut, Win, Spr (Staff)*

**GERLANG 399. Independent Study**—Prerequisite: consent of instructor.

*1-6 units, Aut, Win, Spr, Sum (Staff)*

## HAUS MITTELEUROPA

Other in-house courses may be announced.

**GERLANG 20A. Beginning German Conversation**—(AU)

*1 unit, Aut, Win, Spr (Staff)*

**GERLANG 20B. Intermediate German Conversation**—(AU)

*1 unit, Aut, Win, Spr (Staff)*

**GERLANG 20C. Advanced German Conversation**—(AU)

*1 unit, Aut, Win, Spr (Staff)*

**GERLANG 20D. German Drama**—(AU)

*1 unit, Aut (Staff)*

**GERLANG 20E. Fun Facts about Europe**—(AU)

*1 unit, Win (Staff)*

**GERLANG 20F. Introduction to German History**—(AU)

*1 unit, Spr (Staff)*

**GERLANG 20G. Europe Through Photographs**—(AU)

*1 unit, Spr (Staff)*

**GERLANG 20K. Küche Mitt (German Cooking Class)**—(AU)

*1 unit, Aut (Staff)*

**GERLANG 20M. Mitt Movie Series**—(AU)

*1 unit, Aut (Staff)*

**GERLANG 20N. Great German and Austrian Composers from J.S. Bach to Alban Berg**—(AU)

*1 unit, Win (Staff)*

**GERLANG 20P. European Lifestyles**—(AU)

*1 unit, Spr (Staff)*

**GERLANG 20Q. Highlights of German Literature**—(AU)  
1 unit, Win (Staff)

**GERLANG 20S. Speaking German Mitt**—(AU)  
1 unit, Win (Staff)

**GERLANG 20T. Teaching German Conversation**—(AU)  
1 unit, Aut, Win, Spr (Staff)

## ITALIAN LANGUAGE COURSES

Because the Italian Language Program does not have a formal placement test, students registering for the first time in a first- or second-year course must see the coordinator for proper placement if they have had any prior training in Italian. Consult the Language Center or <http://language.stanford.edu/> for further information.

### FIRST- AND SECOND-YEAR ITALIAN

**ITALLANG 1,2,3. First-Year Italian**—Emphasis is on speaking and oral comprehension. Language lab. Second quarter emphasizes reading and writing skills. Third quarter emphasizes cultural and literary readings.  
2-5 units, Aut, Win, Spr (Baldocchi, Devine, Gelmetti, Napolitano, Tempesta)

**ITALLANG 21,22,23. Second Year Italian**—Review of grammatical structures. Reading, writing, and conversational competence through Italian culture, global awareness, and crosscultural understanding. Literary texts, news clippings, film, video, music, and web sites. Language lab. 22 emphasizes translation, stylistics, and composition. Students read an Italian novel by Sciascia in 23. Prerequisite: 3 or equivalent.

**ITALLANG 21.** 3-4 units, Aut, Win, Spr (Baldocchi, Devine, Gelmetti)

**ITALLANG 22.** 3-4 units, Aut, Win, Spr (Devine, Gelmetti)

**ITALLANG 23.** 3-4 units, Aut, Win, Spr (Napolitano)

**ITALLANG 30. Conversation: Italy Today**—For students planning to go to Florence. Films, slide shows, and lectures on Italian culture including opera, modern music, wine, and food. Preview of the Florentine experience. May be repeated for credit after one year. Limited enrollment. Prerequisite: consent of instructor. Recommended: two quarters of Italian.  
3 units, Aut, Spr (Tempesta)

**ITALLANG 31. Conversation: Talking about Italy**—Open only to students who have studied at the Florence program. Students share their experiences from Florence concerning a favorite Italian wine or city, a favorite author, or movie director. Brief presentation to students in the beginning first-year Italian sequence. Limited enrollment.  
3 units, Win (Tempesta)

**ITALLANG 32. Italian Language Through Cinema**—Use of film sequences to improve communication strategies and review intermediate/advanced grammatical structures. Italian film directors such as Tornatore, Salvatores, and new Italian cinema directors. Emphasis is on movie vocabulary. May be repeated for credit after one year.  
3-4 units, Aut (Gelmetti)

**ITALLANG 41A,B,C. Intensive First-Year Italian**—Covers 1-3 quarters of Italian. Conversational drills and daily work in language lab. All-in-Italian method. Listening, speaking, writing, and reading. Stanford graduate students restricted to 9 units register for 241A,B,C.  
5-15 units, Sum (Staff)

**ITALLANG 50. Reading Italian**—Open to advanced undergraduates with consent of instructor; primarily for graduate students seeking to fulfill University foreign language requirements for advanced degrees. Accelerated acquisition of reading skills in Italian.  
3 units, Win (Devine)

**ITALLANG 60. Italian Opera from the Late 18th Century to the Early 20th Century: From Rossini to Puccini**—Italian history through the operatic melodramas from the heroic epic of the *Risorgimento* to the social anguish of *Verismo*, which brings Italian opera to California as in the *Girl of the Golden West* by Puccini. Students view many grand operas in class, and attend at least one opera performance.  
3-4 units, Aut (Napolitano)

**ITALLANG 99. Language Specials**—Prerequisite: consent of instructor.  
1-5 units, Aut, Win, Spr, Sum (Staff)

## ADVANCED ITALIAN

**ITALLANG 114. Advanced Stylistics and Composition**—Goal is a high level of proficiency in written and spoken Italian. Literary and non-literary texts with textual and grammatical analysis, oral reports, translations, and weekly writing assignments. Prerequisite: 22 or consent of instructor. WIM  
3-4 units, Win (Napolitano)

**ITALLANG 115. Translation and Composition**—Continuation of 114. Emphasis is on composition, writing of short essays, and short stories. Prerequisite: 114 or consent of instructor. WIM  
3-4 units, Spr (Napolitano)

**ITALLANG 394. Graduate Studies in Italian Conversation**—Prerequisite: consent of instructor.  
1-3 units, Aut, Win, Spr (Staff)

**ITALLANG 395. Graduate Studies in Italian**—Prerequisite: consent of instructor.  
2-5 units, Aut, Win, Spr (Staff)

## CASA ITALIANA

**ITALLANG 126. Italy and Italians Today**  
2 units, Aut, Win, Spr (Staff)

## JAPANESE LANGUAGE COURSES

Students registering for the first time in a course must take a placement test if they have had any training in Japanese before entering Stanford. All entering students must take Part I (written) of the placement test online during the summer, followed by Part II (oral), to be administered on campus September 22, 2004. Consult the Language Center or <http://language.stanford.edu/> for further information.

### FIRST- AND SECOND-YEAR JAPANESE

**JAPANLNG 1,2,3. First-Year Modern Japanese**—Provides students with a solid foundation in grammar, conversation, reading, and basic composition (150 Kanji characters introduced).  
5 units, 1: Aut, 2: Win, 3: Spr (Busbin)

**JAPANLNG 7A,8A,9A. First-Year Japanese Language, Culture, and Communication A**—Recommended for those who want to build communication skills in limited time. Online listening exercises, audio-visual materials, kanji tutorials. See <http://www.stanford.edu/class/japanese7a>.  
3 units, 7A: Aut, 8A: Win, 9A: Spr (Lipton)

**JAPANLNG 7B,8B,9B. First-Year Japanese Language, Culture, and Communication B**—Recommended for those who want to become proficient in spoken and written Japanese. Upon completion of first-year sequence, students are able to converse, write, and read essays on topics such as personal history, experiences, familiar people. 300 Kanji characters. See <http://www.stanford.edu/class/japanese7b>.  
5 units, 7B: Aut, 8B: Win, 9B: Spr (Lipton, Staff)

**JAPANLNG 7C. Individualized Kanji Tutoring**—For JLCC (7B, 8B, 9B) students only.  
1-2 units, Aut, Win, Spr (Staff)

**JAPANLNG 10. Intensive First-Year Japanese Language**—(Stanford graduate students restricted to 9 units, register for 10G.) Equivalent to 7B,8B,9B combined.  
9-12 units, Sum (Staff)

**JAPANLNG 17A,18A,19A. Second-Year Japanese Language, Culture, and Communication A**—For those who are interested in studying and/or working in Japan. Continuation of 9A; further understanding of Japanese language, culture, and communication.  
3 units, 17A: Aut, 18A: Win, 19A: Spr (Nakamura)

**JAPANLNG 17B,18B,19B. Second-Year Japanese Language, Culture, and Communication B**—Goal is to express in spoken and written Japanese advanced concepts such as comparisons and contrasts of the two cultures, descriptions of incidents, and social issues. 800 kanji, 1,400 new words, and higher-level grammatical constructions. Readings include newspapers, essays, and novellas. Prerequisite: 9B. See <http://www.stanford.edu/class/japanese17>.

5 units, **17B:** Aut, **18B:** Win, **19B:** Spr (Lowdermilk, Staff)

**JAPANLNG 20. Intensive Second-Year Japanese**—(Stanford graduate students restricted to 9 units, register for 20G.) Equivalent to 17B,18B,19B combined.

9-12 units, Sum (Staff)

**JAPANLNG 21,22,23. Second-Year Modern Japanese**—Continuation of 3 or 5. Conversation and expression of ideas, advanced grammatical patterns, 600 kanji characters, simple compositions, and enhanced understanding of Japanese culture. Goal is to read original source material. Prerequisite: 3 or equivalent.

5 units, **21:** Aut, **22:** Win, (*Arao*) **23:** not given 2004-05

**JAPANLNG 25. Intensive Second-Year Modern Japanese**—Equivalent to 21, 22, and 23 combined. Prerequisite: 3 or equivalent. Stanford graduate students restricted to 9 units may take the course for 9 units.

9-12 units, Sum (Staff)

**JAPANLNG 27,28,29. Intermediate Japanese Conversation**—Develops oral proficiency through simple sentence patterns, audio tapes, and oral presentations. For the practical use of Japanese. Prerequisite: 3, 9B, or consent of instructor.

2 units, **27:** Aut, **28:** Win, **29:** Spr (Busbin)

**JAPANLNG 99. Language Specials**—Prerequisite: consent of instructor.

1-5 units, Aut, Win, Spr, Sum (Staff)

### THIRD-YEAR ADVANCED JAPANESE

**JAPANLNG 101,102,103. Third-Year Modern Japanese**—Beyond fundamental grammatical forms to reading and discussion of more complex material. Emphasis is on Japanese sentence structure in newspaper and journal articles, and readings from fiction, poetry, and essays. Polite language (keigo) skills. Videos of everyday Japanese spoken at normal speed develop listening skills. Prerequisite: 23 or equivalent.

5 units, **101:** Aut, **102:** Win (*Arao*) **103:** not given 2004-05

**JAPANLNG 111,112,113. Business Japanese**—Conducted entirely in Japanese. Focus is on business-related topics: cultural attitudes and approaches, work ethic, the stock market, import-export trade. Introduction to business letters, job interviews, and resume writing. May be repeated for credit. Prerequisite: 23, 29 or 19B or consent of instructor.

3 units, **111:** Aut, **112:** Win, **113:** Spr (*Fu*)

**JAPANLNG 121,122,123. Advanced Japanese Conversation**—Focus is on fine tuning grammatical points, explaining things in Japanese, and fluency. Audiovisual material and oral presentations. Prerequisite: 23, 29, 19B, or consent of instructor.

2 units, **121:** Aut, **122:** Win, **123:** Spr (Lowdermilk)

**JAPANLNG 127A,128A,129A. Third-Year Japanese Language, Culture, and Communication A**—Continuation of 17A, 18A, 19A.

3 units (Staff) not given 2004-05

**JAPANLNG 127B,128B,129B. Third-Year Japanese Language, Culture, and Communication B**—Emphasis is on ability to conduct spontaneous conversations and express abstract thoughts. Materials include current Japanese media, literature, and TV shows. Cultural and social topics related to Japan and its people. See <http://www.stanford.edu/class/japanese127b>. Prerequisite: 19B.

5 units, **127B:** Aut, **128B:** Win, **129B:** Spr (*Tomiyama*)

**JAPANLNG 130. Intensive Third-Year Japanese**—(Stanford graduate students restricted to 9 units, register for 130G.) Equivalent to 101,102,103 combined. Prerequisite: 23 or equivalent.

12 units, Sum (Staff)

**JAPANLNG 200. Directed Reading**—Prerequisite: consent of instructor.

1-5 units, Aut, Win, Spr (Staff)

**JAPANLNG 211,212,213. Advanced Japanese**—Structure of Japanese, writings in different genres and styles, using such knowledge in writing, and expressing opinions on a variety of topics. Original writings, including fiction, essays, newspaper, and journal articles. Recommended taken in sequence. Prerequisite: 103, 129B or equivalent.

3-5 units, **211:** Aut, **212:** Win, **213:** Spr (*Nakamura*)

**JAPANLNG 394. Graduate Studies in Japanese Conversation**—Prerequisite: consent of instructor.

1-3 units, Aut, Win, Spr (Staff)

**JAPANLNG 395. Graduate Studies in Japanese**—Prerequisite: consent of instructor.

2-5 units, Aut, Win, Spr (Staff)

## KOREAN LANGUAGE COURSES

Students registering for the first time in a first- or second-year course must take a placement test if they had any training in Korean before entering Stanford. All entering students must take Part I (written) of the placement test online during the summer, followed by Part II (oral), to be administered on campus September 22, 2004. Consult the Language Center or <http://language.stanford.edu/> for further information.

### FIRST- AND SECOND-YEAR KOREAN

**KORLANG 1,2,3. Beginning Korean**—Basic communicative skills, vocabulary and grammar patterns. Culturally appropriate conduct relevant to contextual needs such as greetings, gestures, and body language..

5 units, **1:** Aut, **2:** Win, **3:** Spr (*Kim*)

**KORLANG 1H,2H,3H. Beginning Korean for Heritage Learners**—For Korean background students. Focus is on reading, writing, and spelling rather than speaking and listening. Students cover beginning Korean course materials in meetings and individual study. Sources include textbook, workbook, and digitized listening materials. Prerequisite: consent of instructor.

1-3 units, **1H:** Aut, **2H:** Win, **3H:** Spr (*Kim*)

**KORLANG 21,22,23. Intermediate Korean**—More complex sentences in grammatical patterns. Goal is conversation in daily situations such as making a polite request or suggestion, reading simple texts, and better knowledge of Korean culture. Prerequisite: 3 or consent of instructor.

3-5 units, **21:** Aut, **22:** Win, **23:** Spr (*Kim*)

### ADVANCED

**KORLANG 101,102,103. Advanced Intermediate Korean**—Materials about Korean culture and society to help students achieve proficiency in interpersonal, interpretive, and presentational communication. Vocabulary, reading, and aural/oral skills. Prerequisite: 23 or consent of instructor.

2-3 units, **101:** Aut, **102:** Win, **103:** Spr (*Kim*)

**KORLANG 120A,B,C. Korean Culture**—Examination of Korean culture and society to develop fluency and vocabulary. Prerequisites: KORLANG 3 and consent of instructor.

1-2 units (*Kim*) not given 2004-05

**KORLANG 150B. Korean Forum**—Reading comprehension and vocabulary through newspaper articles and short essays related to contemporary Korea. Prerequisite: 103 or consent of instructor.

1-5 units (Staff) not given 2004-05

**KORLANG 200. Directed Reading in Korean**—Prerequisite: consent of instructor.

1-5 units, Aut, Win, Spr, Sum (Staff)

**KORLANG 301,302,303. Advanced Korean**—Advanced and intellectual speaking and writing skills. Vocabulary, discussion, and presentation based on readings on topics such as Korean culture, history, economy, politics, multimedia, newspaper articles, and magazines. Prerequisite: 103 or consent of instructor.

3-5 units, **301: Aut, 302: Win, 303: Spr (Kim)**

**KORLANG 395. Graduate Studies in Korean**—Prerequisite: consent of instructor.

1-5 units, *Aut, Win, Spr (Staff)*

## PORTUGUESE LANGUAGE COURSES

Because the Portuguese Language Program does not have a formal placement test, students registering for the first time in a first- or second-year course must see the Coordinator for proper placement if they have had any prior training in Portuguese. Consult the Language Center or <http://language.stanford.edu/> for further information.

### FIRST- AND SECOND-YEAR PORTUGUESE

**PORTLANG 1,2,3. First-Year Portuguese**—Emphasis is on oral comprehension and proficiency in speaking. Students learn the language as they contrast Brazilian culture with their own. Lab.

5 units, **1: Aut, 2: Win, 3: Spr (Delgado)**

**PORTLANG 1A,2A. Accelerated First-Year Portuguese**—For students with two years of formal study of a Romance language, preferably Spanish. Goal is to use socially and culturally appropriate forms in conversations, providing and obtaining information, and expressing feelings, emotions, and opinions. Students learn the language as they contrast Brazilian culture with their own. Lab. Completion of 2A fulfills the University's foreign language requirement.

3-5 units, *Aut, Win, Spr (Wiedemann, Delgado)*

**PORTLANG 11A,12A. Accelerated Second-Year Portuguese**—Focus is on socially and culturally appropriate communication at formal and informal levels. Prerequisite: first-year sequence, equivalent, or consent of instructor.

3-5 units, *Aut, Win, Spr (Delgado, Wiedemann)*

**PORTLANG 50. Reading in Portuguese**—For students with superior reading proficiency in Spanish. Fulfills University reading requirement for advanced degrees. Develops reading competence for research and courses in Luso-Brazilian studies. Overview of grammar. Literary, journalistic, and academic readings.

3-4 units, *Spr (Wiedemann)*

**PORTLANG 99. Language Specials**—Prerequisite: consent of instructor.

1-5 units, *Aut, Win, Spr (Staff)*

**PORTLANG 109. Portuguese for Spanish Speakers**—Equivalent to 1A. Recommended for graduate students of literature. Accelerated introduction to Portuguese. Proficiency-oriented approach, emphasizing speaking and oral comprehension. Students learn the language as they contrast Brazilian culture with their own. Lab. Prerequisites: graduate standing and advanced Spanish reading competence.

3-5 units, *Win (Wiedemann)*

### ADVANCED PORTUGUESE

**PORTLANG 297. Directed Reading**—Prerequisite: consent of instructor.

1-4 units, *Aut, Win, Spr (Staff)*

**PORTLANG 394. Graduate Studies in Portuguese Conversation**—Prerequisite: consent of instructor.

1-3 units, *Aut, Win, Spr (Staff)*

**PORTLANG 395. Graduate Studies in Portuguese**—Prerequisite: consent of instructor.

2-5 units, *Aut, Win, Spr (Staff)*

## SLAVIC LANGUAGE COURSES

Students registering for the first time in a first- or second-year course must take a placement test if they had any training in Russian before entering Stanford. All entering students must take Part I (written) of the placement test online during the summer, followed by Part II (oral), to be administered on campus September 22, 2004. Consult the Language Center or <http://language.stanford.edu/> for further information.

### FIRST- AND SECOND-YEAR RUSSIAN

**SLAVLANG 1,2,3. First-Year Russian**—Essential Russian grammar. Discussions of Russian culture and the Russian view of reality.

5 units, **1: Aut, 2: Win, 3: Spr (Greenhill, Staff)**

**SLAVLANG 5,6,7. Russian for Native Speakers**—Self-paced. Goal is to perfect reading and writing skills and the ability to communicate in formal and informal settings. Does not fulfill the University foreign language requirement.

2 units, **5: Aut, 6: Win, 7: Spr (Staff)**

**SLAVLANG 51,52,53. Second-Year Russian**—More difficult areas of the grammar such as numbers, verb conjugation, and aspect. Vocabulary, speaking skills.

5 units, **51: Aut, 52: Win, 53: Spr (Gettys, Staff)**

### SLAVIANSKII DOM

Other in-house courses may be announced.

**SLAVLANG 60A. Beginning Russian Conversation**

1 unit, *Aut (Staff)*

**SLAVLANG 60B. Intermediate Russian Conversation**—(AU)

1 unit, *Win (Staff)*

**SLAVLANG 60C. Advanced Russian Conversation**

1 unit, *Spr (Staff)*

**SLAVLANG 60D. East European Society and Culture**—(AU)

1 unit, *Spr (Staff)*

**SLAVLANG 60E. European Union Eastward Enlargement**—(AU)

1 unit, *Win (Staff)*

**SLAVLANG 60F. Slavic Films Series**

1 unit, *Win (Staff)*

**SLAVLANG 60P. Theme Projects**—(AU)

1 unit, *Win (Staff)*

**SLAVLANG 60T. Teaching Slavic Conversation**—(AU)

1 unit, *Aut, Win, Spr (Staff)*

**SLAVLANG 99. Language Specials**—Prerequisite: consent of instructor.

1-5 units, *Aut, Win, Spr (Staff)*

### THIRD-YEAR ADVANCED RUSSIAN

**SLAVLANG 111,112,113. Third-Year Russian**—Grammar, writing, conversation. Readings from *The Golden Calf*, a humorous view of the Russians at their best and worst.

4 units, **111: Aut (Staff), 112: Win (Schupbach),**

**113: Spr (Greenhill, Gettys)**

**SLAVLANG 177,178,179. Fourth-Year Russian**—Interactive. Culture, history, and current events. Films, classical and contemporary writers, newspaper articles, documentaries, radio and TV programs, and music. Discussions, role-playing, and creative assignments. Review and fine-tuning of grammar and idiomatic usage. Prerequisite: 113 or equivalent.

3 units, **177,178: Aut, Win (Greenhill), 179: Spr (Gettys)**

**SLAVLANG 181,182,183. Fifth-Year Russian**—Language proficiency maintenance; appropriate for majors and non-majors with language experience overseas. Discussions, oral presentations, and writing essays on contemporary Russia.

3 units, **181: Aut (Staff), 182: Win (Gettys), 183: Spr (Schupbach)**

**SLAVLANG 199. Individual Work**—Prerequisite: consent of instructor.  
*1-5 units, Aut, Win, Spr, Sum (Staff)*

**SLAVLANG 299. Independent Study**—Prerequisite: consent of instructor.  
*1-5 units, Aut, Win, Spr, Sum (Staff)*

**SLAVLANG 395. Graduate Studies in Russian**—Prerequisite: consent of instructor.  
*2-5 units, Aut, Win, Spr (Staff)*

## SPANISH LANGUAGE COURSES

Students registering for the first time in a first- or second-year course must take a placement test if they had any training in Spanish before entering Stanford. All entering students who have not taken the Advanced Placement (AP) Exam and received a score of 4 or 5, or who have not taken the SAT II with a score of 630 or above, must take Part I (written) of the placement test online during the summer, at <http://language.stanford.edu/> SPANISH, followed by Part II (oral), to be administered on campus September 22, 2004. Consult the Language Center or <http://language.stanford.edu/> for further information.

Completion of SPANLANG 2A, 3, or 41C, fulfills the University language requirement.

Students who have never studied Spanish before should enroll in SPANLANG 1. Students who have studied Spanish before entering Stanford must take the placement test to determine the appropriate course for them. Students who have passed the AP exam with a 4 or 5 are exempted from the written test, but must take the oral on September 22, 2004 in order to determine their correct placement. These students are eligible for 10 units of credit in Spanish.

Students who grew up in homes where Spanish is spoken should take the placement test for the special series of courses (21B, 22B, 23B) designed for these speakers. The bilingual series fulfills the language requirement at Stanford. Potential home-background speakers should complete the questionnaire found at <http://language.stanford.edu/HOMEBACKGROUND>.

A grade of 'C' or better is required to enter the next higher course in the language sequence. Language courses may not be repeated for credit.

### FIRST- AND SECOND-YEAR SPANISH

**SPANLANG 1,2,3. First-Year Spanish**—Emphasis is on developing socially and culturally appropriate proficiency in interpersonal, interpretive and presentational spheres. Social and cultural influences shaping the production of oral and written texts in the Spanish- and English-speaking world.

*5 units, Aut, Win, Spr (Staff, García-Denson, Guzmán, Schell, Urruela, Won, Zaragoza)*

**SPANLANG 1A,2A. Accelerated First-Year Spanish**—Completes first-year sequence in two rather than three quarters. For students with previous knowledge of Spanish, or those with a strong background in another Romance language. 2A fulfills the University language requirement. Prerequisite: written and oral placement tests.

*5 units, Aut, Win (Guzmán, Gorostarzu, Miano, Molitoris)*

**SPANLANG 10. Beginning Oral Communication**—For students who have completed or are currently taking 2 and who wish to devote additional class time to developing pronunciation, usable vocabulary, and speaking skills. May be repeated once for credit.

*1-2 units, Aut, Win, Spr (Corso)*

**SPANLANG 11C,12C,13C. Second-Year Spanish: Cultural Emphasis**—Sequence integrating culture and language. Emphasis is on advanced proficiency in oral and written discourse including presentational language and socioculturally appropriate discourse in formal and informal, academic and professional contexts. Prerequisite: one year of college Spanish or equivalent.

*4-5 units, Aut, Win, Spr (Kenna, Schell, Urruela, Won)*

**SPANLANG 11R,12R,13R. Second-Year Spanish: Emphasis on International Relations**—Sequence integrating geopolitics and language. Emphasis is on advanced proficiency in oral and written discourse including presentational language, international relations, and socioeconomics of the Spanish-speaking world. Prerequisite: one year of college Spanish or equivalent.

*4-5 units, 11R: Aut, 12R: Win, 13R: Spr (Perales, Sierra)*

**SPANLANG 15. Intermediate Oral Communication**—Emphasis is on interaction in Spanish both locally and globally. Regional vocabularies and cultures at home and abroad. Interaction with local native Spanish speakers and communities globally via the Internet. May be repeated once for credit.

*3 units, Aut, Win, Spr (Staff)*

**SPANLANG 19M. Spanish for Heritage and Foreign Language Pre-Med and Public Health Students**—For pre-med or public health students who grew up in homes where Spanish is spoken or for students who possess a considerable command of Spanish. Focus is on developing the ability to provide information on health-related topics to Spanish speakers in the U.S. Students participate in the organization and delivery of information on preventive health care in a workshop setting to a Spanish-speaking community.

*3-4 units, Spr (Sierra)*

**SPANLANG 41A,B,C. Intensive First-Year Spanish**—Goal is to engage in interactions with Spanish speakers in socially and culturally appropriate forms. Social and cultural influences shaping the production of oral and written texts in the Spanish- and English-speaking world. Stanford graduate students restricted to 9 units register for 241A,B,C.

*5-15 units, Sum (Staff)*

**SPANLANG 50. Reading Spanish**—For students who have already taken Spanish for at least one full year or have superior reading proficiency in another Romance language. Emphasis is on the comprehension of academic texts. Fulfills University reading requirements for advanced degrees if students earn at least a grade of 'B.'

*3 units, Spr (Sierra)*

### SECOND-YEAR COURSES FOR HERITAGE LANGUAGE STUDENTS

**SPANLANG 21B,22B,23B. Second-Year Spanish for Heritage Language Students**—Emphasis is on ability to communicate orally and in writing. Spelling and the written accent. Goal is to understand, interpret, and analyze texts, movies, radio, and television. Written language skills include rules for editing written language. Third quarter focus is on the development of written and oral styles and registers used in more formal settings.

*3-5 units, 21B: Aut, 22B: Win, 23B: Spr (Staff)*

**SPANLANG 99. Language Specials**—Prerequisite: consent of instructor.  
*1-5 units, Aut, Win, Spr, Sum (Staff)*

### ADVANCED COURSES

**SPANLANG 100. Advanced Oral Communication**—For students who have completed second-year Spanish or who have oral skills above the intermediate level. Interactive activities require students to persuade, analyze, support opinions, and gather and interpret others' points of view. Focus is on vocabulary enrichment and idiomatic expressions. Cultural, literary, political, and journalistic readings. May be repeated once for credit. Prerequisite: 13 or equivalent.

*3 units, Aut, Win, Spr (Staff)*

**SPANLANG 101. The Structure of Spanish**—Criteria and skills to understand and analyze Spanish grammatical structure. Identification of word functions in sentences and texts, types of sentences, and terminology. Structure of nouns, adjectives, and verbs, and their relationship with meaning. The differences between Spanish grammar as a formal system and its grammar in everyday life. Prerequisite: 13C, 13R, 23B, or equivalent.

*3-5 units, Aut, Win (Sierra)*

**SPANLANG 102. Composition and Writing Workshop**—Individual development of the ability to write in Spanish. Emphasis is on style and diction, and on preparing and writing essays on literary topics. Non-Spanish majors or minors may choose topics more closely related to their studies for projects. Prerequisite: two years of college Spanish or equivalent. GER:3a,WIM

3-5 units, Aut (Kenna)

**SPANLANG 102B. Composition and Writing Workshop for Heritage Language Students**—For students with a good understanding of written accents, spelling, and syntax. Focus is on the craft of writing with emphasis on brainstorming, planning, outlining, drafting, revising, style, diction, and editing. Writing essays on literary topics. Non-Spanish majors or minors may choose topics more closely related to their studies. Prerequisite: 21B, 22B, and 23B or equivalent. WIM

3-5 units, Win (Miano)

**SPANLANG 121M,122M,123M. Spanish for Medical Students**—(Same as HRP 280,281,282.) Goal is a practical and rapid command of spoken Spanish. Topics: the human body, hospital procedures, diagnostics, food, and essential phrases for on-the-spot reference when dealing with Spanish-speaking patients. Series can be taken independently, depending on the level of prior knowledge.

3 units, 121M: Aut, 122M: Win, 123M: Spr (Corso)

**SPANLANG 199. Individual Reading**—Prerequisite: consent of instructor.

1-5 units, Aut, Win, Spr, Sum (Staff)

**SPANLANG 394. Graduate Studies in Spanish Conversation**—Prerequisite: consent of instructor.

1-3 units, Aut, Win, Spr (Staff)

**SPANLANG 395. Graduate Studies in Spanish**—Prerequisite: consent of instructor.

3-5 units, Aut, Win, Spr (Staff)

## YOST HOUSE

Other in-house courses may be announced.

**SPANLANG 60A. Beginning Spanish Conversation**—(AU)

1 unit, Aut, Win, Spr (Staff)

**SPANLANG 60B. Intermediate Spanish Conversation**—(AU)

1 unit, Aut, Win, Spr (Staff)

**SPANLANG 60C. Advanced Spanish Conversation**—(AU)

1 unit, Aut, Win, Spr (Staff)

**SPANLANG 60F. Introduction to History**—(AU)

1 unit, Spr (Staff)

**SPANLANG 60K. Cooking Class**—(AU)

1 unit, Aut (Staff)

**SPANLANG 60L. Photography**—(AU)

1 unit (Staff) not given 2004-05

**SPANLANG 60M. Movie Series**—(AU)

1 unit, Aut, Win, Spr (Staff)

**SPANLANG 60T. Teaching Spanish Conversation**—(AU)

1 unit, Aut, Win, Spr (Staff)

## SPECIAL LANGUAGE PROGRAM

The Special Language Program (SLP) offers a number of foreign languages not otherwise taught at Stanford. Based on current funding and student requests, the courses planned for 2004-05 are listed below; however, not every course listed is taught. Additional languages may still be offered upon request, provided funding is available. Requests for the 2005-06 academic year should be made by Spring Quarter of this year at the Special Language Program office.

All beginning-level 3-unit courses are offered on a satisfactory/no credit basis only. Intermediate-level and 4-unit courses are offered with

a grading option. Beginning and intermediate each refer to an academic year's sequence of language study. Most 3-unit language courses are offered for a two-year, three quarter sequence:

All 'A' suffix courses are taught Autumn.

All 'B' suffix courses are taught Winter.

All 'C' suffix courses are taught Spring.

All beginning courses are 3 units except modern Greek and ASL.

All intermediate and advanced courses are 3 units except modern Greek and ASL. In some circumstances, a beginning or intermediate level MAY be offered on alternate years.

## FULFILLING THE LANGUAGE REQUIREMENT

Students can fulfill the language requirement by taking a special language. At least 12 units are needed to complete the requirement. Students who have already taken courses in the relevant language at another institution, or who have previous knowledge of the language, can request to be tested. Tests are comprised of written and oral parts. A student must display first-year level proficiency in the requested language in order to fulfill the requirement. Testing is guaranteed only for these languages currently offered. Students planning to take a test must contact the Special Language Program no later than the Spring Quarter of sophomore year. To submit a request for language testing, or to request a language, apply via the web at <http://www.stanford.edu/dept/SLP>.

## BEGINNING-LEVEL, FIRST-YEAR COURSES

Beginning-level, first-year language courses require no previous knowledge of the language. The beginning-level sequence emphasizes development of the full range of language skills, reading, listening comprehension, the use of grammatical structures, and oral and written communication, through a variety of learning themes. Individual, small group, interactive work and multimedia-based activities reinforce language skills and provide the platform for adapting the curriculum to specific student learning goals. Cultural awareness is a strong component of the curriculum.

## INTERMEDIATE-LEVEL, SECOND-YEAR COURSES

Intermediate-level, second-year language courses require completion of the beginning sequence, or consent of instructor. The intermediate-level sequence focuses on continuous mastery and development of learning skills that help students to converse accurately and more fluently, incorporate more advanced grammatical structures in their oral and written work, use idiomatic expressions in the right context, and write simple compositions.

Specific purpose curricular objectives and enhanced understanding of the culture are built in the courses through a multimodal approach.

## ADVANCED-LEVEL, THIRD-YEAR COURSES

Advanced-level, third year language courses require completion of the intermediate-year sequence and consent of the program coordinator. The advanced-level sequence focuses on accurate understanding and use of structures through authentic, print and multimedia materials, and readings from various genres. Individual learning goals and student proficiency are taken into account to provide a learning environment that helps students become more autonomous learners.

For further information consult the Special Language Program, Building 40, Room 41B.

**SPECLANG 75. Greek Culture, Ideals, and Themes**—Introduction to Greek culture and its global influence in a social historical context. Images from its past, and institutions in Greek society. Focus is on changing experiences including identity, family relations, rituals, and language, from ancient to contemporary times. Limited enrollment. GER:3a,4a

3 units, Spr (Prionas)

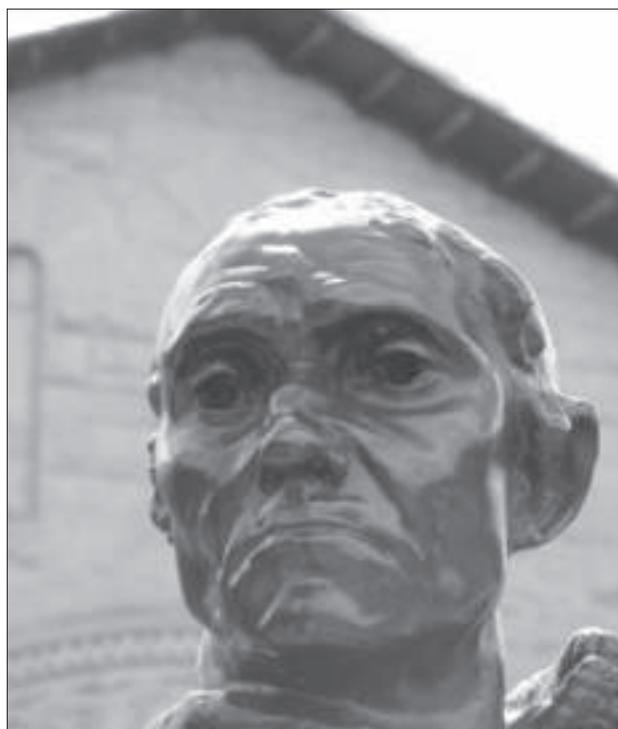
**SPECLANG 120A,B,C. Beginning Malayalam**

3 units (Staff) not given 2004-05

**SPECLANG 123A,B,C. Beginning Armenian**

3 units (Staff) not given 2004-05

- SPECLANG 126A,B,C. Beginning Turkish**  
3 units, A: Aut, B: Win, C: Spr (Kuey)
- SPECLANG 127A. Intermediate Turkish**  
3 units (Staff) not given 2004-05
- SPECLANG 132A,B,C. Beginning Tibetan**  
3 units, A: Aut, B: Win, C: Spr (Lama)
- SPECLANG 138A,B,C. Beginning Navajo**  
3 units, A: Aut, B: Win, C: Spr (Staff)
- SPECLANG 144A,B,C. Beginning Tagalog**  
3 units, A: Aut, B: Win, C: Spr (Paz)
- SPECLANG 145A,B,C. Intermediate Tagalog**  
3 units, A: Aut, B: Win, C: Spr (Paz)
- SPECLANG 146A,B,C. Beginning Persian**  
3 units, A: Aut, B: Win, C: Spr (Mohammadi)
- SPECLANG 150A,B,C. Beginning Vietnamese**  
3 units, A: Aut, B: Win, C: Spr (Ha)
- SPECLANG 151A,B,C. Intermediate Vietnamese**  
3 units, A: Aut, B: Win, C: Spr (Ha)
- SPECLANG 152A,B,C. Beginning Hindi**  
3 units, A: Aut, B: Win, C: Spr (Malhotra)
- SPECLANG 153A,B,C. Intermediate Hindi**  
3 units, A: Aut, B: Win, C: Spr (Malhotra)
- SPECLANG 154A,B,C. Beginning Gujarati**  
3 units, A: Aut, B: Win, C: Spr (Ranchod)
- SPECLANG 155A,B,C. Intermediate Gujarati**  
3 units, A: Aut, B: Win, C: Spr (Ranchod)
- SPECLANG 156A,B,C. Beginning Indonesian**  
3 units, A: Aut, B: Win, C: Spr (Staff)
- SPECLANG 159A,B,C. Beginning Punjabi**  
3 units, A: Aut, B: Win, C: Spr (Dhillon)
- SPECLANG 160A,B,C. Intermediate Punjabi**  
3 units, A: Aut, B: Win, C: Spr (Dhillon)
- SPECLANG 162A,B,C. Beginning Tamil**  
3 units, A: Aut, B: Win, C: Spr (Staff)
- SPECLANG 164A,B,C. Beginning Czech**  
3 units, A: Aut, B: Win, C: Spr (Dusatko)
- SPECLANG 165A,B,C. Intermediate Czech**  
3 units, A: Aut, B: Win, C: Spr (Dusatko)
- SPECLANG 167A,B,C. Beginning Polish**  
3 units, A: Aut, B: Win, C: Spr (Kieturakis)
- SPECLANG 168A,B,C. Intermediate Polish**  
3 units, A: Aut, B: Win, C: Spr (Kieturakis)
- SPECLANG 170A,B,C. Beginning Modern Greek**  
2-4 units, A: Aut, B: Win, C: Spr (Prionas)
- SPECLANG 171A,B,C. Intermediate Modern Greek**  
4 units, A: Aut, B: Win, C: Spr (Prionas)
- SPECLANG 172A,B,C. Modern Greek Language and Culture through Literature and Film**—Accelerated acquisition of reading, writing, comprehension, and conversation skills through literary texts and films. Grammatical structures, idiomatic expression usage, and vocabulary enrichment through complementary, multimedia-based, on-line materials. Alternates with 171A,B,C.  
4 units, A: Aut, B: Win, C: Spr (Prionas)
- SPECLANG 173A,B,C. Beginning Hungarian**  
3 units, A: Aut, B: Win, C: Spr (Mihalik)
- SPECLANG 174A,B,C. Beginning Quechua**  
3 units, A: Aut, B: Win, C: Spr (Fajardo)
- SPECLANG 176A,B,C. Beginning Thai**  
3 units, A: Aut, B: Win, C: Spr (Moore)
- SPECLANG 177A,B,C. Intermediate Thai**  
3 units, A: Aut, B: Win, C: Spr (Moore)
- SPECLANG 178A,B,C. Beginning Sign Language**—Limited enrollment.  
4 units, A: Aut, B: Win, C: Spr (Haas)
- SPECLANG 179A,B,C. Intermediate Sign Language**—Limited enrollment.  
4 units, A: Aut, B: Win, C: Spr (Haas)
- SPECLANG 183A,B,C. Beginning Sanskrit**  
3 units, A: Aut, B: Win, C: Spr (Porta)
- SPECLANG 186A,B,C. Beginning Serbo-Croatian**  
3 units, A: Aut, B: Win, C: Spr (Medic)
- SPECLANG 188A,B. Advanced Croatian**  
3 units (Staff) not given 2004-05
- SPECLANG 189A,B,C. Beginning Hawaiian**  
3 units, A: Aut, B: Win, C: Spr (Staff)
- SPECLANG 190A,B,C. Intermediate Hawaiian**  
3 units (Staff) not given 2004-05
- SPECLANG 192A. Beginning Kazakh**  
3 units (Staff) not given 2004-05
- SPECLANG 195A. Beginning Kiche'e Mayan**  
3 units (Staff) not given 2004-05
- SPECLANG 210A,B. Beginning Mycenaean**  
3 units (Porta) not given 2004-05
- SPECLANG 297. Directed Reading**—Prerequisite: consent of instructor.  
1-4 units, Aut, Win, Spr, Sum (Staff)
- SPECLANG 395. Graduate Studies in Special Language**—Prerequisite: consent of instructor.  
1-5 units Aut, Win, Spr (Staff)



# CENTER FOR LATIN AMERICAN STUDIES

*Director of the Center:* To be announced

*Associate Director:* Molly Vitorte

*Visiting Professors:* Cristian Cox, Armando di Filippo

## **Affiliated Faculty and Staff:**

*Anthropological Sciences:* Clifford R. Barnett (emeritus), William H.

Durham, James A. Fox, Dominique Irvine, John W. Rick

*Art and Art History:* Barbaro Martinez-Ruiz

*Biological Sciences:* Gretchen Daily, Rodolfo Dirzo, Harold Mooney,

Peter Vitousek, Virginia Walbot

*Cantor Arts Center:* Manuel Jordán

*Comparative Literature:* Roland Greene, Johannes U. Gumbrecht

*Dance:* Susan Cashion

*Earth Sciences, School of:* Pamela Matson

*Economics:* David McKenzie, Roger Noll, Clark Reynolds (emeritus)

*Education, School of:* Martin Carnoy, Kathleen Morrison, Amado Padilla

*Engineering, School of:* Bruce Lusignan, Leonard Ortolano

*English:* Ramón Saldívar (also Comparative Literature)

*History:* Zephyr Frank

*Hoover Institute:* William Ratliff

*Human Biology:* Anne Firth Murray

*Introduction to the Humanities:* Carolyn Duffey

*Language Center, Special Languages Program:* Jose Carlos Fajardo

*Law, School of:* Jonathan Greenberg

*Linguistics:* John Rickford

*Medicine, School of:* Victor F. Froelicher, Samuel LeBaron, Peter M. Small

*Political Science:* Alberto Diaz-Cayeros, Stephen Haber, Terry Karl,

Beatriz Magaloni, Michael Tomz

*Religious Studies:* Thomas Sheehan

*Sociology:* Alex Inkeles (emeritus), Michael Rosenfeld

*Spanish and Portuguese:* J. Gordon Brotherston, María-Paz Haro,

Caridad Kenna, Alice Miano, Otilia Perales, Michael P. Predmore,

Richard Rosa, Jorge Ruffinelli, Lúcia de Sá, Ana Sierra, Paul Julian

Smith, Guadalupe Valdés (also School of Education), Lyris

Wiedemann, Yvonne Yarbro-Bejarano

*Stanford Institute for International Studies:* Rosamond Naylor

*Stanford University Libraries:* Adan Griego, Robert Trujillo

*Center Offices:* Bolívar House, 582 Alvarado Row

*Mail Code:* 94305-8545

*Department Phone:* (650)723-4444

*Web Site:* <http://www.stanford.edu/group/las>

The Center for Latin American Studies supports research and teaching on Latin America by the faculty and students of Stanford in all fields of study. Field research, language training, and interdisciplinary approaches are stressed in the Latin American Studies program, which draws on the strength and diversity of its nationally recognized faculty affiliates and substantial library holdings on Latin America. These resources are enhanced by the Tinker Visiting Professorship in Latin American Studies and the Nabuco Visiting Chair in Brazilian Studies, which bring distinguished Latin American academics to teach at Stanford each year.

The center's resources include funds used in support of student and faculty activities and classes in and about Latin America, visiting professors and scholars, and various forms of public outreach, including professional development grants for K-12 and community college instructors wishing to make use of Stanford resources. CLAS also devotes resources to Iberian and Caribbean studies. The center offers an honors certificate program as well as a minor in Latin American Studies for undergraduates.

## UNDERGRADUATE PROGRAMS

Although the University does not offer a B.A. in Latin American Studies, it does offer an honors program and a minor. Stanford also has departmental and interdisciplinary degree programs in which a student may concentrate on Latin America. These include Anthropological Sciences, Cultural and Social Anthropology, History, Political Science, Spanish and Portuguese, and International Relations. Contact the respective departments for further information.

## HONORS PROGRAM IN LATIN AMERICAN STUDIES

The Honors Program in Latin American Studies is open to majors in any field. The aim of the honors program is to prepare students to pursue individualized research on Latin America, culminating in the preparation of an honors thesis written under the supervision of a faculty adviser. The honors program is particularly suited to the student who wishes to go on to graduate school or pursue employment in an institution emphasizing research and independent work. Although not required, students are encouraged to undertake independent field research in Latin America for their thesis. It is strongly recommended that students enroll in HISTORY 206B (1 unit) in the sophomore or junior year for an overview of research design and methods for international field research.

Students should apply for entry into the program no later than the end of the winter quarter of the junior year; the application includes a proposal of thesis topic endorsed by a member of the faculty who is willing to serve as the student's honors adviser. Applicants should have a cumulative grade point average (GPA) of 3.3 (B+) or higher, and maintain this average in courses taken to satisfy the requirements. All courses are to be taken for a letter grade where that option is available. Unlike the minor, courses credited toward LAS honors may be double counted toward the student's major requirements.

The requirements for honors in Latin American Studies are:

1. Complete a total of 35 units in courses certified for honors by the Center for Latin American Studies. The 35 units must be distributed as follows:
  - a) *A survey:* one 5-unit course surveying either all of Latin America or a major multi-country region therein, namely HISTORY 80 (Culture, Politics, and Society in Latin America). This is normally taken in the sophomore year. With the approval of the center and the honors adviser, students may substitute another such course, for example, a Stanford Introductory Seminar or a course offered through Stanford's Overseas Studies.
  - b) *For breadth:* two 4-5-unit courses at the 100-level or above with a focus on the region, offered through the Center for Latin American Studies or an affiliated department or program (such as Anthropological Sciences, History, Spanish and Portuguese, International Relations, or Stanford Overseas Studies). These courses are normally taken during the sophomore or junior years.
  - c) *For depth:* one 4-5-unit course at the 100-level or above with a focus on the region that explores an issue in depth of particular interest to the student, approved by the honors adviser. This course may be taken with the honors thesis in mind. It is normally taken during the junior year or the beginning of the senior year.
  - d) Of the courses applied to 'b' and 'c', above, 10 units may be completed in Overseas Studies and 5 units may be taken as directed individual study.
  - e) LATINAM 198, Honors Thesis (2-10 units), under the supervision of the student's faculty honors adviser. Normally these units are spread over two or three quarters of the senior year and are devoted to the completion of the honors thesis.
  - f) LATINAM 199, Honors Seminar (5 units). This is normally taken in the Winter Quarter of the senior year.
  - g) Enough additional courses focusing on Latin America to bring the total to 35 units. These must be at the 100-level or higher, except that up to 5 units may also come from study of Spanish or Portuguese beyond the seventh quarter, or of a second language of Latin America at any level, as outlined in the Foreign Language

Requirement. LATINAM 195, Pre-Field Research Seminar, may also be counted toward the 35 units.

2. Fulfill the Foreign Language Requirement (see below).
3. Write an Honors thesis, as follows:
  - a) Under the supervision of a member of the faculty, submit to the Director of Latin American Studies a written proposal for the thesis topic by end of the Winter quarter of the junior year.
  - b) Submit a thesis of acceptable quality by mid-Spring Quarter of the senior year.

The Center sponsors grants for undergraduate research in Latin America (see below). Students are encouraged to pursue such research and use it as a basis for their honors thesis.

A typical honors student takes the survey course (for example, HISTORY 80) in the sophomore year, while also fulfilling the Foreign Language Requirement. During the junior year, the student completes 15 additional units of coursework (requirements 1b and 1c, above), attends one of the overseas campuses in Latin America (Santiago or another program approved by the University and the center), secures an adviser, and works with that adviser to complete a thesis proposal and honors program application by the end of the Winter Quarter. The student also applies for research funding through the Center for Latin American Studies, URP, etc. If the honors research is to be done in the field, the student enrolls in LATINAM 195, Pre-Field Research Seminar, in the Spring of the junior year. After the research period is over, the student attends the LAS Honors College, and in the senior year enrolls in LATINAM 198, Honors Thesis, for 1-3 quarters, and completes LATINAM 199, Honors Seminar, in Winter Quarter of the senior year.

## FOREIGN LANGUAGE REQUIREMENT

Acquisition of a language of Latin America is critical to an in-depth understanding of Latin America, both for advanced study and fieldwork, and for future professional endeavors. The minimum requirement for completion of either the minor or the honors certificate is to obtain or demonstrate advanced proficiency in Spanish or Portuguese by any of the following means:

1. completion of seven quarters of college-level study of Spanish or Portuguese.
2. completion of a course on Spanish or Portuguese language or literature, or on some other subject but taught in Spanish or Portuguese, at the 100-level or higher, with a letter grade of 'B' (3.0) or better, unless grades are not available for the course.
3. achievement of the Advanced Proficiency level on the ACTFL scale in a test administered by the Department of Spanish and Portuguese, or, by petition, by some other department. Students with advanced proficiency in either Spanish or Portuguese are encouraged to enroll in a course in the other major language, such as Portuguese for Spanish Speakers; alternatively, students may study a Latin American Indian language such as Quechua, Yucatec (Maya), K'ichee' (Maya), Nahuatl, or Kreyol (Haitian). Up to 10 units in third-year Spanish or Portuguese, or at any level for a second Latin American language, may count toward the minor and honors provided they are approved by the student's adviser and taken for a letter grade if that option is available.

## HONORS COLLEGE

The LAS honors college, sponsored along with many other departmental and interdisciplinary honors colleges by the Vice Provost for Undergraduate Education, is an intensive three-week residential program offered directly preceding Autumn Quarter. It affords returning LAS honors students who have completed field work a debriefing and a focused series of presentations by a member of the CLAS-affiliated faculty and other Stanford instructors on adviser interaction, data preservation, bibliographic resources, writing strategies, statistical analysis, organizational techniques for completing the thesis process, and opportunities to socialize with other honors students in the college, all without cost to the students. Ample time is provided for library research, individual faculty consultations, and data analysis. Applications for honors colleges are available in the Spring prior to the senior year.

## SUMMER FIELD RESEARCH

Each summer, the center awards research grants to a small number of undergraduates to conduct individual research projects in Latin America. Students must have demonstrated the ability to work independently, and possess the necessary language competence. Applications include a research proposal that has been reviewed and endorsed by a faculty member who agrees to serve as sponsor. A pre-field seminar is required the Spring Quarter before departure. Students from all departments are eligible to apply.

## MINORS

The minor in Latin American Studies is offered for students in other majors who wish to develop a complementary concentration on the region. To pursue the minor, students must submit for approval an online proposal of coursework no later than the second quarter of their junior year. The minor must be completed by the second quarter of the senior year. Requirements for the minor include:

1. Completion of 25 units as follows: a 5-unit course surveying Latin America, for example, LATINAM 80 or an approved substitute; 20 additional units at the 100-level or higher which together comprise a coherent focus on a theoretical problem or issue of the region; for example, culture and identity, political economy, sustainable development. At least 10 of the total 25 units must be completed at Stanford.
2. Demonstration of proficiency in either Spanish or Portuguese, equivalent to the requirement for the honors certificate.
3. Field experience in Latin America (study abroad, summer research, internship, and so on) is recommended.

Upon satisfactory completion of all requirements, the center's Subcommittee on Undergraduate Programs authorizes the designation of the Minor in Latin American Studies on the student's transcript.

Units for a student's major cannot be double-counted towards the minor.

## GRADUATE DEGREE PROGRAMS

Although the University does not offer an M.A. or Ph.D. in Latin American Studies, Stanford has several departmental programs in which a student may concentrate on Latin America. These include Anthropological Sciences, Cultural and Social Anthropology, History, Political Science, and Spanish and Portuguese. Contact the respective departments for admission information.

## COURSES

**LATINAM 50Q. Social Justice in Latin America**—Stanford Introductory Seminar. Preference to sophomores. Social injustice and human rights issues stemming from contemporary social, political, economic, and cultural conditions in Latin America. Sources include essays on justice in Latin America, testimonial literature, and fiction. Consequences of speaking out against injustice. Emphasis is on analyzing primary documents and literature, and multidisciplinary approaches to research questions.

*5 units, Aut (Vitorte)*

**LATINAM 130/230. Latin American Development**—Historical and institutional analysis of Latin American development. Comparison of evolution of N. American and Latin American societies with emphasis on institutional structures of capitalism and democracy. Technological, organizational, and institutional change.

*5 units, Aut (Di Filippo)*

**LATINAM 131/231. Latin America in the 21st-Century International Order**—The connection between the technological, institutional, and organizational transformation of the world economic order at the end of the 20th century and the open, deregulated, and market-oriented model of economic development adopted by Latin American countries. Compatibility of regional and hemispheric integration.

*5 units, Win (Di Filippo)*

**LATINAM 132/232. Contemporary Latin American Development**—Common theoretical foundations of and differences in approach between the Institutional School of Economics and the Latin American School of Development. Economic, cultural, and political viewpoints. Lessons in economic philosophy from instructor's Santiago course.

5 units, Spr (*Di Filippo*)

**LATINAM 133/233. Politics and Policy Analysis of Educational Reform in Latin America**—Case studies of recent educational reform in Latin America, including Argentina, Brazil, and Chile. Focus is on reform ideologies and market- and state-driven strategies. Types of school reform; expansion, distribution, and transformation of opportunities to learn. Role of international actors and educational research and specialized knowledge in the reform process.

5 units, Win (*Cox*)

**LATINAM 134/234. New Competencies and Social Cohesion: Society's Requirements and Curriculum Reform in Latin America**—Politics of curriculum construction and implementation. Curriculum reform as national answer to common requirements of new competencies and social cohesion of the knowledge society. Focus is on impact of new international standards on curricula; citizenship education; teachers' ownership and management of new curricula as a problem of contemporary educational reforms.

5 units, Spr (*Cox*)

**LATINAM 195. Prefield Research Seminar**—Preparation for summer fieldwork in Latin America or other regions. Interdisciplinary research design and methodology; the relationship between evidence and argument; practicalities of field research in developing countries; and ethical and political considerations.

5 units, Spr (*Staff*)

**LATINAM 197. Directed Individual Research**—For students engaged in special interdisciplinary work that cannot be arranged by department.

1-10 units, Aut, Win, Spr (*Staff*)

**LATINAM 198. Honors Thesis**—Restricted to those writing an honors thesis in Latin American Studies.

1-10 units, Aut, Win, Spr (*Staff*)

**LATINAM 199. Honors Seminar in Latin American Studies**—For any senior writing an honors thesis related to Latin America.

5 units, Win (*Staff*)

## INTERDEPARTMENTAL OFFERINGS

The courses listed below by department deal primarily with Latin America; all are given in 2004-05. See the respective department listings for course descriptions and General Education Requirement (GER) information. Additional relevant courses by resident or visiting faculty may be offered; for updated information, consult the quarterly *Time Schedule*. Contact the Center for Latin American Studies for a list of approved courses, including courses frequently given but not given in 2004-05.

## BIOLOGICAL SCIENCES

**BIOSCI 114. Field Course on Tropical Biogeochemistry: Amazon as Case Study**—(Same as EARTHSYS 114.)

3 units, Aut (*Vitousek*)

## HISTORY

**HISTORY 80. Culture, Politics, and Society in Latin America**

5 units, Aut (*Frank*)

**HISTORY 206B/306B. Design and Methodology for International Field Research**

1 unit, Win (*N. Kollman, Roberts*)

## OVERSEAS STUDIES

Courses taught overseas can be found in the "Overseas Studies" section of this bulletin, or in the Overseas Studies office, 126 Sweet Hall.

# LINGUISTICS

*Emeriti: (Professors)* Clara N. Bush, Shirley Brice Heath, William R. Leben,\* Elizabeth C. Traugott

*Chair:* Beth Levin

*Professors:* Joan Bresnan (on leave), Eve V. Clark, Penelope Eckert (on leave), Martin Kay, Paul Kiparsky, Beth Levin, Stanley Peters, John R. Rickford, Ivan A. Sag, Peter Sells, Thomas A. Wasow

*Associate Professor:* Daniel Jurafsky

*Assistant Professors:* Arto Anttila, David Beaver (Autumn, Winter), Edward Flemming, Christopher Manning

*Courtesy Professor:* John Baugh

*Senior Lecturers:* Philip L. Hubbard, Beverley J. McChesney

*Consulting Professors:* Ronald Kaplan, Lauri Karttunen, Geoffrey Nunberg, Annie Zaenen

*Consulting Associate Professor:* Jared Bernstein

*Consulting Assistant Professors:* Cleo Condoravdi, Hinrich Schuetze

*Lecturers:* Isabelle Buchstaller, Vivienne Fong

*Visiting Professor:* Arnold Zwicky

*Affiliated Faculty:* Herbert H. Clark, James A. Fox, Kenji Hakuta, Miyako Inoue, Yoshiko Matsumoto, Orrin W. Robinson III, Richard D. Schupbach, Chaofen Sun

\* Recalled to active duty.

*Department Offices:* Margaret Jacks Hall, Building 460

*Mail Code:* 94305-2150

*Phone:* (650) 723-4284

*Email:* linguistics@csl.stanford.edu

*Web site:* <http://www-linguistics.stanford.edu>

Courses given in Linguistics have the subject code LINGUIST. For a complete list of subject codes, see Appendix.

Linguistics concerns itself with the fundamental questions of what language is and how it is related to the other human faculties. In answering these questions, linguists consider language as a cultural, social, and psychological phenomenon and seek to determine what is unique in languages, what is universal, how language is acquired, and how it changes. Linguistics is, therefore, one of the cognitive sciences; it provides a link between the humanities and the social sciences, as well as education, and hearing and speech sciences.

The department offers courses at the undergraduate and graduate levels in the areas central to linguistic theory and analysis. Many of them deal with the analysis of structural patterns in the different components that make up language, including sounds (phonetics and phonology), meanings (semantics), words (morphology), sentences (syntax), and the way they vary and change over time. Other courses integrate the analysis of linguistic structure with phenomena that directly concern other disciplines. These include courses in computational linguistics, language acquisition, the philosophy of language, and sociolinguistics.

A variety of open forums provide for the discussion of linguistic issues, including colloquia and regularly scheduled workshops in child language, computational linguistics, phonology, semantics, sociolinguistics, and syntax. Faculty and visiting scholars in the department and the Center for the Study of Language and Information, whose members are computer scientists, linguists, philosophers, and psychologists, participate extensively in the activities of the department.

## UNDERGRADUATE PROGRAMS BACHELOR OF ARTS

The undergraduate major stresses the study of language both as a fundamental human faculty and as a changing social institution. At the core of the program is a set of departmental courses on the nature of human language; the major also draws on courses offered by other departments and programs.

The Linguistics major cuts across the humanities and the social and physical sciences. It provides a solid general education as a background

for advanced studies in such disciplines as Anthropology, Communication, Computer Science, Education (Language, Literacy, and Culture), hearing and speech sciences, languages, Law, Linguistics, Philosophy, and Psychology.

## REQUIREMENTS

Requirements for the B.A. include at least 50 units of course work in Linguistics and approved courses in related fields. Of the 50 units required for the major, at least 16 must come from core Linguistics courses; no more than 12 of the 50 units may be below 100 level. No more than two courses, neither of which can be a core course, may be taken on a credit/no credit basis.

*Core Courses*—The core courses are:

- LINGUIST 1. Introduction to Linguistics
- LINGUIST 110. Introduction to Phonetics and Phonology
- LINGUIST 120. Introduction to Syntax
- LINGUIST 130A. Introduction to Linguistic Meaning, *or* 130B. Introduction to Lexical Semantics
- LINGUIST 150. Language in Society, which fulfills the Writing in the Major requirement (WIM)
- LINGUIST 160. Introduction to Language Change, *or*, in advance consultation with the Linguistics undergraduate studies chair, a course in historical linguistics or the history of a language

All majors must complete at least five core courses, including LINGUIST 150, Language and Society, which fulfills the Writing in the Major requirement (WIM).

*Other Courses*—Other courses counting toward the unit requirement should form a coherent program with emphases from among the areas of concentration listed below. Students should consult with the Linguistics undergraduate studies chair when declaring the major, and maintain regular contact during the remainder of their Stanford career. Each student's major program must be approved by the Linguistics undergraduate studies chair, or approved department adviser.

Students in the major must also take:

1. At least two 200-level Linguistics courses, typically in their area of concentration.
2. LINGUIST 197, Undergraduate Research Seminar, in the junior year. (Special arrangements can be made for transfer students and others who start the major late.)

*Other Requirements*

1. Foreign Language: majors must have competence in at least one language other than English as part of their understanding of the field of linguistics and its study. This is usually demonstrated by the completion of six quarters of language study at Stanford or equivalent; level of proficiency is determined by the Language Center or the relevant language department.

Students may petition to be exempted from the Language Requirement if they have grown up speaking a language other than English and can use it for everyday purposes and for linguistic analysis.

2. Junior Research Paper: this requirement is typically fulfilled by providing an additional stage of revision on a research paper previously submitted in a Linguistics course. It must be approved by both the instructor of the course and the Linguistics undergraduate studies chair.

## AREAS OF CONCENTRATION

Students select one of the following areas of concentration or develop one themselves in advance consultation with the Linguistics undergraduate studies chair.

**General Linguistics**—This program provides a broad education in Linguistics and is advisable for students interested in advanced degrees in Linguistics.

All five core courses are required.

**Language and Society**—This concentration focuses on the social dimensions of language.

**Language Structures**—This concentration focuses on the cognitive aspects of language.

1. **Specialization in Chinese:** in addition to the core courses in Linguistics, and LINGUIST 197, Undergraduate Research Seminar, students must have competence in Chinese at the level of six quarters of language study at Stanford, and complete at least two courses in Chinese linguistics, one of which must be at the 200 level, from among:
  - CHINGEN 73/173. Chinese Language, Culture, and Society
  - CHINLIT 191/291. The Structure of Modern Chinese
  - CHINLIT 192/292. The History of Chinese
2. **Specialization in Japanese:** in addition to the core courses in Linguistics, and LINGUIST 197, Undergraduate Research Seminar, students must have competence in Japanese at the level of six quarters of language study at Stanford, and complete at least two courses in Japanese linguistics, one of which must be at the 200 level, from among:
  - JAPANGEN 71N. Language and Gender in Japan
  - JAPANLIT 177/277. The Structure of Japanese
  - JAPANLIT 281. Japanese Pragmatics
3. **Specialization in Spanish:** in addition to the core courses in Linguistics, and LINGUIST 197, Undergraduate Research Seminar, students must have competence in Spanish at the level of six quarters of language study at Stanford, and complete at least three courses in Spanish linguistics from among:
  - SPANLIT 203. History of the Spanish Language
  - SPANLIT 205. Dialectology of the Spanish Language
  - SPANLIT 206. Spanish Use in Chicano Communities
  - SPANLIT 207. Theory and Issues in the Study of Bilingualism

Other language concentrations can be arranged on an ad hoc basis if appropriate courses are available in the relevant departments.

## MINORS

Requirements for the minor include at least 28 units of course work (typically 7 courses) in Linguistics and related fields, approved in advance by the Linguistics undergraduate studies chair. No more than two courses, neither of which can be a core course, may be taken on a credit/no credit basis. The courses counting towards the minor must be incremental units beyond those needed to satisfy the student's major course of study. The minor consists of:

1. LINGUIST 1. Introduction to Linguistics
2. Two out of the following five Linguistics core courses:
  - LINGUIST 110. Introduction to Phonetics and Phonology
  - LINGUIST 120. Introduction Syntax
  - LINGUIST 130A. Introduction to Linguistic Meaning, *or* LINGUIST 130B. Introduction to Lexical Semantics
  - LINGUIST 160. Introduction to Language Change, *or*, in advance consultation with the Linguistics undergraduate studies chair, a course in historical linguistics or the history of a language.
3. At least four other courses determined in advance consultation with the Linguistics undergraduate studies chair. Students are encouraged to take at least one 200-level Linguistics course. Students may also choose to do independent work with a faculty member of their choice.

## HONORS PROGRAM

Students who wish to undertake a more intensive program of study, including independent research, should seek departmental honors. An application to pursue honors work should be presented to a Linguistics undergraduate adviser before the end of the junior year. Approval is given only to students who have maintained a grade point average (GPA) of 3.3 (B+) or better in the courses required for the major.

Honors students take a total of 60 units. These must include the 50 units for the major, 10 additional units of independent study and Honors Research and an honors thesis based on research conducted with a principal adviser who must be a member of the Linguistics faculty, and a secondary faculty adviser who may, with the approval of the Undergraduate Studies Committee, be a member of another department. In the Autumn Quarter of the senior year, honors students enroll in LINGUIST 199,

Independent Study, to work closely with one of the advisers on the research project. In Winter and Spring quarters, honors students register in LINGUIST 198, Honors Research, with the principal adviser for close supervision of the honors thesis. The thesis must be submitted in final, acceptable, form by May 15. The thesis topic is presented orally at a department Honors Colloquium late in Spring Quarter.

## COTERMINAL PROGRAM

The Department of Linguistics admits a very limited number of undergraduates to work for their coterminal degree in Linguistics. Students are required to submit to the department a complete application, which includes a statement of purpose, a Stanford transcript, three letters of recommendation (at least one of which must be from a faculty member in Linguistics), and a proposed course of study (worked out in advance with a Linguistics adviser). Applicants for the coterminal degree may apply as early as their eighth quarter and no later than early in the eleventh quarter of undergraduate study. Decisions on admission to the coterminal degree rest with the Graduate Admissions Committee of the Department of Linguistics. For further application information, see the department's web pages.

For University coterminal degree program rules and University application forms, see <http://registrar.stanford.edu/publications/#Coterm>.

## GRADUATE PROGRAMS

### MASTER OF ARTS

The University's basic requirements for the master's degree are discussed in the "Graduate Degrees" section of this bulletin. The following are additional departmental requirements. Candidates should review the department's "Guidelines for the M.A. and Ph.D. Degrees" for further particulars concerning these requirements.

1. *Courses*: candidates must complete a minimum of 45 units of graduate work in linguistics, including at least four courses in the student's area of specialization. No more than two courses should be at the 100 level.

Individual programs should be worked out in advance with an adviser who should ascertain that the necessary courses in the area of specialization are offered over the course of the year of anticipated enrollment. The overall grade point average (GPA) must be at least 3.0 (B) for all degree program coursework.

2. *Language*: reading knowledge of a non-native language in which a substantial linguistic literature is written, with sufficient facility to understand and interpret linguistic research published in that language, or in-depth research on the structure of a non-native language.
3. *Thesis or Thesis Project*: a research paper supervised by a committee of three faculty (normally fulfilled by up to 6 units of LINGUIST 398, Directed Research).

### DOCTOR OF PHILOSOPHY

The following requirements are in addition to the basic University requirements for the degree sought; see the "Graduate Degrees" section of this bulletin. Candidates should review the department's "Guidelines for the M.A. and Ph.D. Degrees" for further particulars concerning these requirements.

1. *Language*: candidates must demonstrate the ability to read at least one foreign language in which a substantial linguistic literature is written, with sufficient facility to understand and to interpret linguistic research published in that language. (Particular areas of specialization may require additional research languages.)

In addition, each candidate must demonstrate an explicit in-depth knowledge of the structure of at least one language (normally neither the candidate's native language nor the language used for the reading exam). This requirement is fulfilled by writing an original research paper on a language.

2. *Courses*: a minimum of 135 units of graduate work beyond the B.A. or B.S. exclusive of dissertation units or, beyond the M.A., 90 units exclusive of dissertation units. A basic course requirement detailed

in the Ph.D. guidelines guarantees that each student covers a sufficient set of subareas within the field.

Candidates must maintain a satisfactory record in the number and distribution of units completed. The overall course work GPA must be at least 3.0 (B) and all of the basic courses should be completed with at least a 'B.'

3. *Research*: the prospective Ph.D. candidate is expected to complete two substantial qualifying papers. The deadline for completion of the first qualifying paper is the end of the Autumn Quarter of the second year; the deadline for completion of the second qualifying paper is the end of Spring Quarter of the second year. The subject matter of the two papers, although it may be related (for example, same language), must be clearly distinct. The requirement is fulfilled by LINGUIST 395A,B, Research Workshop (1-2 units each), and by oral discussion with a committee of at least three faculty members selected by the student and the faculty.
4. *Candidacy*: students must complete a prescribed portion of the basic course requirement (see item 2 above), one foreign language requirement (see item 1 above), and one qualifying paper (see item 3 above) by the end of their second year.
5. *Teaching*: at least three quarters serving as teaching assistant in a linguistics course.
6. *Colloquia*: two oral presentations exclusive of the oral presentation of the dissertation proposal (see item 7b below). This requirement is satisfied by class presentations, conference papers, or colloquium talks. Normally, both should be given during the first four years of study.
7. *Dissertation*:
  - a) A written dissertation proposal is required by the end of the third year.
  - b) Oral presentation of the dissertation proposal, preferably as a colloquium.
  - c) Approval of the dissertation topic and appointment of a dissertation committee.
  - d) Successful passing of a University oral examination on the dissertation and related areas.
  - e) Dissertation (up to 15 units of LINGUIST 399).

### PH.D. MINOR

1. *Courses*: the candidate must complete 30 units of course work in linguistics at the 100 level or above, including LINGUIST 110, 120, and either 130A or 130B (100-level courses are waived if 200-level courses in the same area are taken), and at least three courses related to the area of specialization. Courses submitted for the minor must be incremental units beyond those used to satisfy the major. Individual programs should be worked out in advance with the student's Ph.D. minor adviser in linguistics.
2. *Research Project* (optional): the candidate may elect to present a paper which integrates the subject matter of linguistics into the field of specialization of the candidate.
3. The linguistics adviser or designee serves on the candidate's University oral examination committee and may request that up to one-third of the examination be devoted to the minor subject.

*Ph.D. Minor in Applied Linguistics*—The Department of Linguistics participates in the Applied Linguistics Minor. See the "Language Center" section of this bulletin for full details.

### COGNITIVE SCIENCE

Linguistics is participating with the departments of Computer Science, Philosophy, and Psychology in an interdisciplinary program in Cognitive Science for doctoral students. The program is intended to provide an interdisciplinary education as well as a deeper concentration in linguistics. Students who complete the Linguistics and Cognitive Science requirements receive a special designation in Cognitive Science along with the Ph.D. in Linguistics. To receive this field designation, students must complete 30 units of approved courses, to be determined in consultation with the graduate studies adviser.

## COURSES

WIM indicates that the course satisfies the Writing in the Major requirement.

## LINGUISTICS

Courses numbered under 100 are designed primarily for pre-majors. Courses with 100-level numbers are designed for majors, minors, and M.A. and Ph.D. minor candidates in Linguistics. Those with numbers 200 and above are primarily for graduate students, but with the consent of instructor some of them may be taken for credit by qualified undergraduates.

At all levels, the course numberings indicate a special area, as follows:

- 01-04 General
- 05-19 Phonetics, Phonology, and Morphology
- 20-39 Syntax, Semantics, and Pragmatics;  
Mathematical and Computational Linguistics
- 40-49 Language Acquisition and Psycholinguistics
- 50-59 Sociolinguistics
- 60-69 Language Change, Language and Culture
- 70-84 Linguistic Analysis of a Language
- 85-94 Methods
- 95-99 Directed Work, Theses, Dissertations

**LINGUIST 1. Introduction to Linguistics**—The study of language and its structure including cognitive and social perspectives. What are the sounds of English and other languages? What structures are used in forming words and sentences? To what extent are human beings hard-wired for those structures, and how does this influence language learning? How do languages develop and diverge over time? What social meanings do different forms of language convey? The answers to these questions have implications for our understanding of everyday language interactions, social identity, and the relation between language and thought. GER:3b

*4 units, Aut (Sells, Beaver)*

**LINGUIST 17N. Spoken Soul: Black English and Its Controversies**—Stanford Introductory Seminar. Preference to sophomores. The vernacular of Black America, otherwise known as Ebonics or African American vernacular English, and its structure and controversies. The argument over whether it is a legitimate language variety or just slang. Its origins, history, and the relative importance of its English, African, and Creole ancestries. The Oakland Ebonics controversy. Its use by writers, preachers, and comedians.

*3 units, Win (Rickford)*

**LINGUIST 30Q. Split Infinitives, Prepositions at End, and Other Horrors**—Stanford Introductory Seminar. Preference to sophomores. Basic ideas in syntax as applied to English and where they come from. Questioning grammatical authority; where grammar manuals get the rules of grammar. The real system of English grammar and usage, including prepositions, pronouns, modifiers, syntactic functions such as subjects, and forms such as the accusative case. When can material be omitted in a sentence? What gives rise to ambiguities? GER:3b

*4 units, Spr (Zwicky)*

**LINGUIST 40N. Nature versus Nurture**—Stanford Introductory Seminar. Preference to freshmen. To what extent is human behavior determined by genetic endowment, and on upbringing and experiences? This long-debated question as the subject of modern social science research; why it remains controversial. Emphasis is on recent language acquisition research as a focal point of the controversy. GER:3b

*3 units, Spr (Wasow)*

**LINGUIST 44N. Living with Two Languages**—Stanford Introductory Seminar. Preference to freshmen. The nature of bi- and multilingualism with emphasis on the social and educational effects in the U.S. and worldwide, in individual versus society, and in child and adult. The social, cognitive, psycholinguistic, and neurological consequences of bilingualism. Participation in planning and carrying out a research project in language use and bilingualism. GER:3b

*3 units, Spr (E. Clark)*

**LINGUIST 62. History of the English Language**—(Enroll in ENGLISH 171.)

*5 units, Aut (Brown)*

**LINGUIST 70. Structure of English Words**—(Graduate students register for 270.) Patterns of structure and meaning in English vocabulary. Goals are to increase vocabulary, and to take the mystery out of the processes that have made vocabulary what it is today by discovering the principles behind changes in pronunciation, structure, and meaning. Students taking optional practicum register for 5 units. GER:3b

*4-5 units, Aut (Leben)*

**LINGUIST 73. African American Vernacular English**—(Graduate students register for 273.) Survey of the English vernacular spoken by African Americans in big city settings, and its relation to Creole English dialects spoken on the S. Carolina Sea Islands (Gullah), in the Caribbean, and in W. Africa. The history of expressive uses of African American English (in soundin' and rappin'), and its educational implications. GER:3b

*3-5 units (Rickford) not given 2004-05*

**LINGUIST 85. Teaching Spoken English**—Practical approach to teaching English to non-native speakers. Survey of both teaching principles and the features of English which present particular difficulties. Preparation of lessons, practice teaching in class, and tutoring of non-native speaker.

*3-4 units, Spr (Rylance)*

**LINGUIST 105. Phonetics**—(Graduate students register for 205.) The study of speech sounds: how we produce them, how we perceive them, their acoustic properties. The influence of production and perception systems on sound change and phonological patterns. Acoustic analysis and experimental techniques. Lab exercises. Prerequisite: equivalent of 110 or consent of instructor. GER:3b

*4 units, Win (Scarborough)*

**LINGUIST 108A. Topics in Phonology: Metrics**—(Graduate students register for 208A.)

*1-4 units, Aut (Kiparsky)*

**LINGUIST 108C. Topics in Phonology: Intonation**—(Graduate students register for 208C.) The phonetics and phonology of intonation and prosody.

*1-4 units, Spr (Scarborough)*

**LINGUIST 110. Introduction to Phonetics and Phonology**—Differences in the sounds of the world's languages and how these sounds are made by the human vocal tract. Theories that account for cross-linguistic similarities in the face of all the differences. GER:3b

*4 units, Spr (Leben)*

**LINGUIST 120. Introduction to Syntax**—Analyses of various grammatical constructions, primarily English, and their consequences for a general theory of language. Practical experience in forming and testing linguistic hypotheses, reading, and constructing rules. GER:3b

*4 units, Aut (Wasow)*

**LINGUIST 124A. Introduction to Formal Universal Grammar**—(Graduate students register for 224A.) Study a formal model of universal grammar explicitly designed to explain crosslinguistic variation in syntactic structure: nonconfigurationality in Australian aboriginal languages, incorporation in native American languages and the Bantu languages of Africa, scrambling and head movement in more familiar European languages. General issues such as universal grammar design, analytic problems from a variety of natural languages. Prerequisites: introduction to syntax and some familiarity with logic or other symbolic systems, or consent of instructor. GER:3b

*4 units (Bresnan) not given 2004-05*

**LINGUIST 125. Seminar in Syntax: The Architecture of Grammar**—(Graduate students register for 225; same as SYMBSYS 208.) Comparison of current debates about grammar architecture with similar ones in the 60s and 70s. Emphasis is on the relationship between syntax and

semantics, and the role of transformations in it. The relevance of the generative semantics movement, and arguments against it, to contemporary linguistic theory. Prerequisite: syntax course.

2-4 units, Win (Wasow)

**LINGUIST 125A. Syntactic Variation**—(Graduate students register for 225A.) Case studies in variations (between individual speakers, regional and social dialects, and styles) in the details of syntactic constructions, considering implications for syntactic theory.

1-4 units, Aut (Zwicky)

**LINGUIST 128. Real English: The Syntax of Language Use**—(Graduate students register for 228.) Hands-on experience with modern corpus methods, and natural spoken and written syntactic data. Introduce and develop syntax through the syntactic analysis of spontaneous spoken conversations as well as newspaper reportage, using tagged and parsed corpora such as the Penn Treebank. Topics include standard subject matter suitable for a syntax introduction, but each of the core topics is investigated empirically in natural English. GER:3b

4 units (Bresnan, Zaenen) not given 2004-05

**LINGUIST 130A. Introduction to Linguistic Meaning**—Linguistic meaning and its role in communication. How diagnostic tests can be used to categorize and separate semantic phenomena such as ambiguity and vagueness, entailment, and presupposition. How basic set theory and logic can be used to specify meanings and explain semantic phenomena. Pragmatic complications involving the assumptions and intentions of language users. For those who have not taken logic (such as PHIL 159), an associated credit/no credit 1-unit self-study lab is offered using *Tarski's World*. Prerequisite: 120 or consent of instructor. GER:3b

4 units, Win (Peters)

**LINGUIST 130B. Introduction to Lexical Semantics**—Issues in the study of word meaning. Focus is on the core semantic properties and internal organization of the four major word categories in natural languages: nouns, verbs, adjectives, and prepositions. GER:3b

4 units, Spr (Fong)

**LINGUIST 130C. Logic Laboratory**—Typically taken in conjunction with 130A/230A.

1 unit, Win (Peters)

**LINGUIST 133A. Semantics Seminar: Tense and Aspect**—(Graduate students register for 233A.) The temporal structure of different languages. Topics include the logic of time, the presentation of situations, and the semantics of tense and aspect in narrative discourse.

1-4 units, Win (Fong)

**LINGUIST 138. Introduction to Computer Speech and Language Processing**—(Graduate students register for 238.) Spoken language dialogue systems, speech recognition and synthesis, web-based question answering, and the ideas of parsing, grammars, semantic interpretation, and discourse processing. Focus is on writing scripts to use available online implementations of these applications, rather than on implementing the applications themselves. Prerequisite: CS 106B/X. GER:2b

4 units, Aut (Jurafsky)

**LINGUIST 139M. Human and Machine Translation**—(Graduate students register for 239M.) The process of translation by professional and amateur translators, and by existing and proposed machine-translation systems; what each might learn from the others. Prerequisite: advanced knowledge of a foreign language. GER:2b

4 units, Aut (Kay)

**LINGUIST 139P. Programming and Algorithms for Natural Language Processing**—(Graduate students register for 239P.) Construction of computer programs for basic linguistic processes such as string search, morphological, syntactic, and semantic analysis and generation, and simple machine translation. Emphasis on the algorithms that have proved most generally useful for solving such problems.

3-4 units, Win (Kay)

**LINGUIST 140. Language Acquisition I**—(Graduate students register for 240.) Survey of the processes of language acquisition in early childhood, with exposure to research questions and methods. GER:3b  
4 units, Aut (E. Clark)

**LINGUIST 144. Introduction to Cognitive Science**—(Same as SYMB-SYS 100, PSYCH 130, PHIL 190.) The history, foundations, and accomplishments of the cognitive sciences, including presentations by leading Stanford researchers in artificial intelligence, linguistics, philosophy, and psychology. Overview of the issues addressed in the Symbolic Systems major. GER:3b

4 units, Spr (Jurafsky, Richardson)

**LINGUIST 145. Language and Thought**—(Enroll in PSYCH 131.)

4 units, Aut (H. Clark)

**LINGUIST 146. Language and Gender**—The role of language in the construction of gender, the maintenance of the gender order, and social change. Linguistic resources and strategies to create gendered personae. Field projects explore hypotheses about the interaction of language and gender. No previous knowledge of linguistics required. GER:3b,4c

4 units (Eckert) not given 2004-05

**LINGUIST 150. Language in Society**—How language and society affect each other. Social dialects, and class, ethnic, and gender differences in speech. Prestige and stigma associated with different ways of speaking and the politics of language. Stylistic practice; how speakers use language to construct styles and adapt their language to different audiences and social contexts. GER:3b,WIM

4-5 units, Aut (Buchstaller)

**LINGUIST 151. Pidgin and Creole Sociolinguistics**—(Graduate students register for 251.) Introduction to pidgins and creoles, organized around the three main stages in the pidgin-creole life cycle: pidginization, creolization, and decreolization. Focus is on transformations in the English language as it was transported from Britain to Africa, Asia, the Caribbean, and the Pacific. Resultant pidginized and creolized varieties such as Nigerian Pidgin English, Chinese Pidgin English, New Guinea Tok Pisin, Suriname Sranan, and the creole continua of Guyana, Jamaica, and Hawaii. Also French, Dutch, Portuguese, Chinook, Motu, and Sango.

2-4 units, Spr (Rickford)

**LINGUIST 152. Language and Adolescence**—Adolescents are generally believed to have their own way of speaking relating directly to their life stage. Adolescence as a cultural construct, and the role of language use in this construct. Readings focus on real use data.

4 units (Staff) not given 2004-05

**LINGUIST 153. Ebonics and Other Vernaculars in Schools and Society**—The role that Ebonics and other vernaculars such as Gullah, Appalachian English, Hawaiian Pidgin, and the Caribbean Creole varieties play in their speakers' schools and societies. Such vernaculars are often blamed for their speakers' difficulties with literacy and job mobility, but they play roles in the expressive fabric and social relationships of their speakers, and there is evidence that their potential usefulness in educational reform has been underestimated. GER:3b

4 units (Staff) not given 2004-05

**LINGUIST 155B. Topics in Sociolinguistics: Reporting of Experience**—How speakers use language to shape, report, and share their past experiences. Features of spoken language such as narrative structure, audience design, quotation, discourse markers, and spoken interaction.

1-4 units, Spr (Buchstaller)

**LINGUIST 159. Language in the U.S.**—(Graduate students register for 259.) The multifaceted nature of language in the U.S. Social, regional, and ethnic varieties such as African American vernacular English and Appalachian English; other languages including Spanish, Native American languages, Asian American voices, and American Sign Language; and the sociolinguistic situation including language attitudes and prejudices, rap and hip hop, the language of doctors and patients, and the English only and Ebonics controversies. GER:3b

3-5 units (Rickford) not given 2004-05

**LINGUIST 160. Introduction to Language Change**—(Enroll in ANTHSCI 110.)

4-5 units, Win (Fox)

**LINGUIST 164. Language of Advertising**—The use of language and imagery in advertising. How are commercials and print ads structured? What aspects of language in advertising are effective, and why? When advertising oversteps the bounds of everyday language use, do new patterns of language emerge? GER:3b

3-4 units (Sells) not given 2004-05

**LINGUIST 175. African American English in Educational Context**—(Enroll in EDUC 175/275.)

3 units (Staff) alternate years, given 2005-06

**LINGUIST 187. Field Methods**—(Graduate students register for 287.) Hands-on-overview of the methods by which linguists gather raw linguistic data about a language and begin the task of analyzing its structure. Working with a speaker of a language not previously studied by class participants, students attempt to develop a description of key aspects of the grammar of the language and examine methodologies for obtaining, storing, and manipulating data.

2-4 units (Staff) not given 2004-05

**LINGUIST 189. Linguistics and the Teaching of English as a Second/Foreign Language**—(Graduate students register for 289.) Methods and techniques for teaching languages, using ideas from modern linguistics, and language acquisition theory. Focus is on teaching English, but the principles underlying methods and techniques discussed are applicable to teaching any language. GER:3b

4-5 units, Win (Hubbard)

**LINGUIST 197. Undergraduate Research Seminar**—Introduction to research goals and methods in linguistics and related disciplines. Provides a forum for students to work on a small project that helps define a focus for their linguistic studies and to prepare for honors research. Presentations, discussion, and final paper.

2 units, Win (E. Clark)

**LINGUIST 198. Honors Research**

1-15 units, Win, Spr (Staff)

**LINGUIST 199. Independent Study**

1-15 units, Aut, Win, Spr, Sum (Staff)

**LINGUIST 200. Foundations of Linguistic Theory**—Theories that have shaped 20th-century linguistics; recurrent themes and descriptive practice.

4 units, Aut (Kiparsky)

**LINGUIST 201. Advanced Introduction to Linguistics**—Primarily for graduate students. Introduction to the leading ideas of linguistic description and linguistic argumentation. The fundamental representational notions in phonology, syntax, and semantics, and the place of these notions in wider linguistic analysis.

4 units, Win (Zwicky)

**LINGUIST 203. Research Methods in Linguistics**—Presentations and in-class, hands-on exercises. Topics include use of corpus data, extraction of suitable data from corpora, use of human subjects, experimental design, and elicitation and observation in the field and laboratory. Restricted to first year Ph.D. and M.A. students in Linguistics.

3 units, Aut (Levin)

**LINGUIST 205. Phonetics**—(Same as 105; see 105.)

4 units, Win (Scarborough)

**LINGUIST 206. Phonology**—Introduction to phonological theory and analysis based on cross-linguistic evidence. Topics: phonological representations including features, syllables, metrical structure; phonological processes including assimilation and dissimilation; and phonological typology and universals.

4 units, Spr (Anttila)

**LINGUIST 207A. Morphology**—How morphology fits into the lexicon and how the lexicon fits into grammar. Inflection and word-formation: blocking, productivity, analogy. Morphological categories. The interaction of morphology with phonology within the lexicon: level-ordering, prosodic morphology. Review of English morphology and analysis of representative material from languages with richer morphologies.

4 units, Win (Anttila, Kiparsky)

**LINGUIST 207B. Morphosyntax**—The role of morphology in grammar: how word structure serves syntax in the expression of meaning. Universal properties and typology of morphological categories; proposals towards their principled explanation in a restrictive theory of language.

2-4 units (Kiparsky) not given 2004-05

**LINGUIST 208A. Topics in Phonology: Metrics**—(Same as 108A; see 108A.)

1-4 units, Aut (Kiparsky)

**LINGUIST 208B. Topics in Phonology**

1-4 units, Win (Anttila)

**LINGUIST 208C. Topics in Phonology: Intonation**—(Same as 108C; see 108C.)

1-4 units, Spr (Scarborough)

**LINGUIST 221A. Foundations of English Grammar**—A systematic introduction to the formal analysis of English grammar using the framework of Head-Driven Phrase Structure Grammar (HPSG). Topics: feature structure modeling, lexical and phrasal organization in terms of type hierarchies and constraint inheritance, clausal types, patterns of complementation, the auxiliary system, extraction dependencies, wh-constructions, and the syntax-semantics interface.

1-4 units, Win (Sag)

**LINGUIST 221B. Studies in Universal Grammar**—Focus is on grammatical analysis of individual languages. Builds directly on the theoretical foundations presented in 221A. Topics vary each year.

1-4 units, Spr (Sag)

**LINGUIST 222A. Lexicalist Foundations of Syntax**—Introductory syntax focusing on the role of the verb and the lexicon in the determination of sentence syntax. Topics: the argument/adjunct distinction, subcategorization and argument structure, motivation for a lexicalist approach, principles governing argument expression, operations on argument structure and grammatical function changing rules, unbounded dependencies, and the approach to unbounded dependencies rooted in principles of lexical expression and subcategorization satisfaction.

2-4 units, Aut (Sells)

**LINGUIST 222B. Lexical Foundations Seminar: Semantic Prominence and Argument Realization**—The effect of semantic precedence relations among coarguments on their syntactic expression through a study of thematic hierarchies and proto-roles. Relative contributions to argument realization of event structure, causal order, and semantic properties of nouns. Case studies may include dative verbs, two-argument activity verbs, and psych-verbs. Prerequisite: 222A or 232A.

2-4 units, Spr (Levin)

**LINGUIST 224A. Introduction to Formal Universal Grammar**—(Same as 124A; see 124A.)

4 units (Bresnan) not given 2004-05

**LINGUIST 224B. Advanced Topics in Lexical Functional Grammar**—A formal model of universal grammar explaining radical crosslinguistic variation in syntactic structure.

1-4 units (Bresnan) not given 2004-05

**LINGUIST 225. Seminar in Syntax: The Architecture of Grammar**—(Same as 125; see 125.)

2-4 units, Win (Wasow)

**LINGUIST 225A. Syntactic Variation**—(Same as 125A; see 125A.)

1-4 units, Aut (Zwicky)

**LINGUIST 227A. Research Seminar in Syntax: *wh*-movement**

1-4 units, Aut (Sag)

**LINGUIST 227B. Research Seminar on Optimization in Grammar**—Current topics. Topics change annually; may be repeated for credit.

1-4 units (Bresnan) not given 2004-05

**LINGUIST 228. Real English: The Syntax of Language Use**—(Same as 128; see 128.)

4 units (Bresnan, Zaenen) not given 2004-05

**LINGUIST 229. Syntax Research Seminar**—Recent analyses of major syntactic phenomena using the approach of the minimalist program. Topics chosen according to student interest.

1-2 units, Win, Spr (Sells)

**LINGUIST 230A. Introduction to Semantics and Pragmatics**—Introduction to meaning in natural language. Topics: elementary set theory; propositional logic, predicate logic, and lambda calculus, and their relation to semantic analysis; model theoretic characterizations of meaning and semantic properties of English conjunctions and determiners. Grice's theory of implicature, speech acts, Davidson's theories of logical form, and Montague Grammar. Recommended: familiarity with elementary logic and set theory.

2-4 units, Win (Beaver)

**LINGUIST 230B. Semantics and Pragmatics**—Expands on 230A. Standard approaches to formal semantics (Montague grammar, DRT, and basic dynamic semantics). Analyses of selected semantic phenomena in these frameworks. Prerequisites: 230A; or combination of 130 and PHIL 159 and 160.

2-4 units (Beaver) not given 2004-05

**LINGUIST 232A. Lexical Semantics**—Introduction to issues in word meaning, focused primarily around verbs. Overview of the core semantic properties of verbs and the organization of the verb lexicon. Approaches to lexical semantic representation, including semantic role lists, protocols, and causal and aspectual theories of event conceptualization.

2-4 units, Aut (Levin)

**LINGUIST 233A. Semantics Seminar: Tense and Aspect**—(Same as 133A; see 133A.)

1-4 units, Win (Fong)

**LINGUIST 233B. Semantics Seminar**

1-4 units, Spr (Peters)

**LINGUIST 234. Discourse Analysis**—The organization of language above the sentence level, and the manifestation of language in context. Practical experience in working with discourse data.

4 units, Win (Buchstaller)

**LINGUIST 235. Quantitative and Probabilistic Explanation in Linguistics**—Capturing the soft constraints inherent in linguistic systems, based on quantitative evidence obtained from linguistic corpora. Computer tools for collecting and modeling data. Emphasis is on syntax.

3-4 units, Win (Manning)

**LINGUIST 236. Speech Recognition and Synthesis**—(Same as CS 224S.) Introduction to automatic speech recognition and speech synthesis/text-to-speech. Focus is on key algorithms including noisy channel model, hidden Markov models (HMMs), Viterbi decoding, N-gram language modeling, unit selection synthesis, and roles of linguistic knowledge. Prerequisite: programming experience. Recommended: familiarity with probability.

2-4 units, Win (Jurafsky)

**LINGUIST 237. Natural Language Processing**—(Same as CS 224N.) Algorithms for processing linguistic information and the underlying computational properties of natural languages. Morphological, syntac-

tic, and semantic processing from a linguistic and an algorithmic perspective. Focus is on modern quantitative techniques in NLP: using large corpora, statistical models for acquisition, representative systems. Prerequisites: LINGUIST 138/238 or CS 121/221, and programming experience. Recommended: basic familiarity with logic and probability.

3-4 units, Spr (Manning)

**LINGUIST 238. Introduction to Computer Speech and Language Processing**—(Same as 138; see 138.)

4 units, Aut (Jurafsky)

**LINGUIST 239D. Discourse and Dialogue Systems**

3-4 units, Win (Peters)

**LINGUIST 239E. Topics in Computational Linguistics: Grammar Engineering**—Hands-on introduction to techniques for implementation of linguistic grammars, drawing on sound grammatical theory and engineering skills. The implementation of constraints in morphology, syntax, and semantics, working within a unification-based lexicalist framework. Focus is on developing small grammars for English and at least one other language. Prerequisite: basic knowledge of syntactic theory or 120. No prior programming skills required.

1-4 units, Win (Flickinger, Oepen)

**LINGUIST 239F. Finite State Methods in Natural Language Processing**—Introduction to the theory and available technology for finite state language processing. The applications range from tokenization to phonological and morphological analysis, disambiguation, and shallow parsing.

3-4 units, Aut (Karttunen)

**LINGUIST 239I. Text Retrieval and Mining**—(Enroll in CS 276A.)

3 units, Aut (Manning, Raghavan)

**LINGUIST 239J. Web Search and Mining**—(Enroll in CS 276B.)

3 units, Win (Manning, Raghavan)

**LINGUIST 239M. Human and Machine Translation**—(Same as 139M; see 139M.)

4 units, Aut (Kay)

**LINGUIST 239P. Programming and Algorithms for Natural Language Processing**—(Same as 139P; see 139P.)

3-4 units, Win (Kay)

**LINGUIST 239S. Spoken Dialogue Systems**—(Same as SYMBSYS 121K/221K.) Theories and practices around building speech recognition-based dialogue systems. Differences between speech and graphical interfaces. Skills in application design and implementation; design of usability experiments to gauge the effectiveness of application design principles. Recommended: some programming background.

2-4 units, Aut (Byrne, Cohen)

**LINGUIST 240. Language Acquisition I**—(Same as 140; see 140.)

4 units, Aut (E. Clark)

**LINGUIST 241. Language Acquisition II: Advanced Topics in Language Acquisition**—Ingredients for modeling language acquisition: general versus specialized learning mechanisms; memory; positive and negative evidence; single exemplars versus rules; paradigms and constructions.

1-4 units, Win (E. Clark)

**LINGUIST 246. Psycholinguistics**—(Enroll in PSYCH 214.)

1-3 units (H. Clark) not given 2004-05

**LINGUIST 247. Seminar in Psycholinguistics: Psycholinguistics of Conversational Speech**—(Same as PSYCH 227.) Psychological processes for spontaneous, conversational speech. Current theories and issues in production and comprehension. Possible topics include turn-taking, prosody in spontaneous speech, lexical choice, accommodation, collaboration, disfluencies, orientation, grammar, and methodological issues in conversational corpus investigation.

2-4 units, Spr (Jurafsky, H. Clark)

**LINGUIST 250. Sociolinguistic Theory and Analysis**—Introduction to theories of the interaction between language and social life, combining social and linguistic theory. Classic articles in variation, dialectology, the ethnography of speaking, verbal interaction, and language contact. Prerequisite: graduate standing in Linguistics or consent of instructor.

4 units, Aut (Rickford)

**LINGUIST 251. Pidgin and Creole Sociolinguistics**—(Same as 151; see 151.)

2-4 units, Spr (Rickford)

**LINGUIST 255A. Topics in Sociolinguistics: Variation in Discourse and Grammaticalization**—The quotative system. Prerequisites: 150/250 or consent of instructor.

1-4 units, Spr (Buchstaller)

**LINGUIST 255B. Topics in Sociolinguistics: Community Studies of Variation**—Prerequisites: 150/250 or consent of instructor.

1-4 units (Eckert) not given 2004-05

**LINGUIST 258. Analysis of Variation**—The quantitative studies of linguistic variability in time, space, and society. Theoretical issues are related to social and linguistic constraints in variation. Hands-on work with variable data. Prerequisites: 105/205 and 150/250, or consent of instructor.

4 units (Eckert) not given 2004-05

**LINGUIST 259. Language in the U.S.**—(Same as 159; see 159.)

3-5 units (Rickford) not given 2004-05

**LINGUIST 260A. Historical Morphology and Phonology**—Sound change and analogical change in the perspective of linguistic theory. Internal and comparative reconstruction.

4 units (Kiparsky) not given 2004-05

**LINGUIST 260B. Historical Morpho-Syntax**—Morphological and syntactic variation and change. Reanalysis, grammaticalization. The use of corpora and quantitative evidence.

2-4 units, Spr (Kiparsky)

**LINGUIST 270. Structure of English Words**—(Same as 70; see 70.)

4-5 units, Aut (Leben)

**LINGUIST 273. African American Vernacular English**—(Same as 73; see 73.)

3-5 units (Rickford) not given 2004-05

**LINGUIST 278C. Topics in East Asian Syntax**—(Same as CHINLIT 392.) Claims and analyses in the transformational syntax literature concerning the structure of modern Chinese; comparisons include Japanese and Korean. Basic literacy in modern transformational approaches. Topics include: Chinese clausal structure, the syntax-phonology and syntax-semantics interfaces, including the notion of logical form. Readings according to student interest.

1-4 units, Spr (Sells)

**LINGUIST 287. Field Methods**—(Same as 187; see 187.)

2-4 units (Staff) not given 2004-05

**LINGUIST 289. Linguistics and the Teaching of English as a Second/Foreign Language**—(Same as 189; see 189.)

4-5 units, Win (Hubbard)

**LINGUIST 292. The History of Chinese**—(Enroll in CHINLIT 192/292.)

4 units (Sun) not given 2004-05

**LINGUIST 390. M.A. Project**

1-3 units, Aut, Win, Spr, Sum (Staff)

**LINGUIST 394. TA Training Workshop**—For second year graduate students in linguistics.

1 unit, Aut (Sells)

**LINGUIST 395A,B,C. Research Workshop**—Restricted to students in the doctoral program. Student presentations of research toward qualifying papers.

1-2 units, A: Spr (E. Clark), B: Spr (Sag), C: Sum (Sells)

**LINGUIST 396. Research Projects in Linguistics**—Mentored research project for first-year graduate students in linguistics.

2-3 units, Win (Staff)

**LINGUIST 397. Directed Reading**

1-15 units, Aut, Win, Spr, Sum (Staff)

**LINGUIST 398. Directed Research**

1-15 units, Aut, Win, Spr, Sum (Staff)

**LINGUIST 399. Dissertation Research**

1-15 units, Aut, Win, Spr, Sum (Staff)

**LINGUIST 435A. Research Seminar in Applied Linguistics**—(Enroll in EDUC 435X.)

1-4 units (Baugh) not given 2004-05



## DIVISION OF LITERATURES, CULTURES, AND LANGUAGES

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The Division of Literatures, Cultures, and Languages consists of six academic departments (Asian Languages, Comparative Literature, French and Italian, German Studies, Slavic Languages and Literatures, and Spanish and Portuguese) as well as the Language Center which oversees language instruction at Stanford. All the departments of the division offer academic programs leading to B.A., M.A., and Ph.D. degrees. The division brings together scholars and teachers dedicated to the study of literatures, cultures, and languages from humanistic and interdisciplinary perspectives. The departments in the division are distinguished by the quality and versatility of their faculty, a wide variety of approaches to cultural tradition and expression, and the intense focus on the mastery of languages. This wealth of academic resources, together with small classes and the emphasis on individual advising, creates a superior opportunity for students who wish to be introduced to or develop a deeper understanding of non-English speaking cultures.

The division's departments and the Language Center offer instruction at all levels, including introductory and general courses that do not require knowledge of a language other than English. As indicated, they satisfy a variety of undergraduate requirements and can serve as a basis for developing a minor or a major program in the member departments. The more advanced and specialized courses requiring skills in a particular language are listed under the relevant departments, as are descriptions of the minor and major programs.

### COURSES

**DLCL 309. The Teaching of Literature**—Prepares graduate students in DLCL departments to teach literature at the undergraduate level. Topics include: the opportunities and problems of transposing a research project into a feasible course; the logic of syllabi and reading lists; the structuring of a course from week to week; and other matters relevant to first-time teachers of literature. Supervised by the Graduate Affairs Committee of the DLCL.

*2 units, Au, Win, Spr (Staff)*

**DLCL 310. The Development of a Dissertation from Prospectus to Defense**—Meets regularly throughout the year to advise and support dissertation-level students as they prepare a prospectus, begin writing, submit chapters, and complete their projects. Focus of the workshop shifts from term to term as appropriate to the participants. Supervised by the Graduate Affairs Committee of the DLCL.

*2 units, Aut, Win, Spr (Staff)*

**DLCL 311. Professional Workshop**—Meets regularly throughout the year to discuss issues in the professional study of literature. While the general focus is on the academic job market, other topics include: the place of literature in the higher education system of the U.S.; the shape of academic careers; and the challenges of research and teaching at different kinds of institutions. Supervised by the Graduate Affairs Committee of the DLCL.

*2 units, Aut, Win, Spr (Staff)*



## MATHEMATICAL AND COMPUTATIONAL SCIENCE

*Director:* Bradley Efron

*Associate Director:* Susan Holmes

*Committee in Charge:* Takeshi Amemiya (Economics), Gunnar Carlsson (Mathematics), Richard Cottle (Management Science and Engineering), Thomas M. Cover (Electrical Engineering, Statistics), Bradley Efron (Statistics), Gene Golub (Computer Science), J. Michael Harrison (Graduate School of Business), Susan Holmes (Statistics), Doron Levy (Mathematics), Art Owen (Statistics), George Papanicolaou (Mathematics), Eric Roberts (Computer Science), David Rogosa (Education), David Siegmund (Statistics), Arthur F. Veinott Jr. (Management Science and Engineering), Julie Zelenski (Computer Science)

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Courses given in Mathematical and Computational Science have the subject code MCS. For a complete list of subject codes, see Appendix.

This interdepartmental, interschool undergraduate program is designed as a major for students interested in the mathematical and computational sciences, or in the use of mathematical ideas and analysis in problems in the social or management sciences. It provides a core of mathematics basic to all of the mathematical sciences and an introduction to the concepts and techniques of automatic computation, optimal decision-making, probabilistic modeling, and statistical inference. It also provides an opportunity for elective work in any of the mathematical science disciplines at Stanford.

The program utilizes the faculty and courses of the departments of Computer Science, Management Science and Engineering, Mathematics, and Statistics. It prepares students for graduate study or employment in the mathematical and computational sciences or in those areas of applied mathematics which center around the use of computers and are concerned with the problems of the social and management sciences.

A biology track for students interested in applications of mathematics, statistics and computer science to the biological sciences (bioinformatics, computational biology, statistical genetics, neurosciences, etc.) is now offered.

## UNDERGRADUATE PROGRAMS

### BACHELOR OF SCIENCE

The requirement for the bachelor's degree, beyond the University's basic requirements, is an approved course program of 72 to 77 units, distributed as follows:

<b>Mathematics (MATH): 29-31 units</b>	<i>Qtr. and Units</i>
41. Calculus	A 5
and 42. Calculus	A,W 5
51. Linear Algebra & Differential Calculus of Several Variables	A,W,S 5
or 51H. Honors Advanced Calculus	A 5
52. Integral Calculus of Several Variables	A,W,S 5
or 52H. Honors Advanced Calculus	W 5
53. Ordinary Differential Equations with Linear Algebra	A,W,S 5
or 53H. Honors Advanced Calculus	S 5
109. Applied Group Theory (WIM)	W 3
or 110. Applied Number Theory and Field Theory (WIM)	S 3
or 120. Modern Algebra (WIM)	A,S 3
113. Linear Algebra and Matrix Theory	A,W 3

<b>Computer Science (CS): 16-18 units</b>	<i>Qtr. and Units</i>
103X. Discrete Structures (Accelerated)	A 3-4
or 103A. Discrete Mathematics for Computer Science	A,W 3
and 103B. Discrete Structures	W,S 3
106X. Programming Methodology and Abstractions (Accel.)	A,W 3-5
or 106A. Programming Methodology	A,W,S 3-5
and 106B. Programming Abstractions	W,S 3-5

And two of the following (CS):

107. Programming Paradigms	A,S 3-5
137. Introduction to Scientific Computing (same as CME 110)	W 3-4
154. Introduction to Automata and Complexity Theory	A,S 3-4
161. Design and Analysis of Algorithms	A,W 3-4

### Management Science and Engineering (MS&E): 8-9 units

Both:

111. Introduction to Optimization (enroll in ENGR 62)	A,S 3-4
121. Introduction to Stochastic Modeling	W 4

or three of the following:

211. Linear and Nonlinear Optimization	A 3-4
212. Network and Integer Programming	W 3
221. Stochastic Modeling	W 3
251. Stochastic Decision Models	W 3

### Statistics (STATS): (11 units)

116. Theory of Probability	A,S 3-5
191. Introduction to Applied Statistics	S 3-4
or 203. Intro. to Regression Models and Analysis of Variance	W 3
200. Introduction to Statistical Inference	W 3

### ELECTIVES (9 UNITS)

Three courses in mathematical and computational science, 100-level or above, and at least 3 units each. At least one must be chosen from the following:

	<i>Qtr. and Units</i>
ECON 102C. Advanced Topics in Econometrics	S 5
ECON 140. Introduction to Financial Economics	S 5
ECON 160. Game Theory and Economic Applications (prerequisite ECON 51)	S 5
ECON 179. Experimental Economics	S 5
EE 261. The Fourier Transform and its Applications	A,W 3
MS&E 211. Linear and Nonlinear Optimization	A 3-4
MS&E 212. Network and Integer Programming	S 3
MS&E 221. Stochastic Modeling	W 3
MS&E 251. Stochastic Decision Models	W 3
MCS 100. Mathematics of Sports (same as STATS 50) (not given 2004-05)	
MATH 106. Functions of a Complex Variable	A 3

MATH 108. Introduction to Combinatorics and its Applications	A 3
MATH 115. Functions of a Real Variable	A,W 3
MATH 116. Complex Analysis	S 3
MATH 118. Numerical Analysis	A 3
MATH 131. Partial Differential Equations I	A,W 3
MATH 132. Partial Differential Equations II	S 3
MATH 135. Nonlinear Dynamics and Chaos	W 3
PHIL 151/251. First-Order Logic	W 4
STATS 202. Data Analysis	A 3
STATS 217. Introduction to Stochastic Processes	W 3

For Computer Science (CS), electives can include courses not taken as units under the CS list above and the following:

CS 108. Object-Oriented Systems Design	W,S 3-4
CS 140. Operating Systems and Systems Programming	A,W 3-4
CS 143. Compilers	A,S 3-4
CS 157. Logic and Automated Reasoning	A,S 3-4
CS 161. Design and Analysis of Algorithms	A,W 3-4
CS 194. Software Project (prerequisite CS 108)	W,S 3
CS 221. Artificial Intelligence: Principles and Techniques	A 3-4
CS 223A. Introduction to Robotics	W 3
CS 223B. Introduction to Computer Vision	W 3
CS 225A. Experimental Robotics	S 3
CS 228. Probabilistic Models in Artificial Intelligence	A 3
CS 229. Machine Learning	A 3
CS 237A. Numerical Linear Algebra	A 3
CS 243. Advanced Compiling Techniques	W 3-4
EE 275. Logic Design	A,W 3
EE 282. Computer Architecture and Organization	A,W 3

With the adviser's approval, courses other than those offered by the sponsoring departments may be used to fulfill part of the elective requirement. These may be in biology, economics, electrical engineering, industrial engineering, medicine, etc., that might be relevant to a mathematical sciences major, depending on the particular interest of the student.

- At least three quarters before graduation, majors must file with their advisers a plan for completing degree requirements.
- All courses used to fulfill major requirements must be taken for a letter grade with the exception of courses offered satisfactory/no credit only.
- A course used to fulfill the requirements of one section of the program may not be applied toward the fulfillment of the requirements of another section.
- The student must have a grade point average (GPA) of 2.0 or better in all course work used to fulfill the major requirement.

### MATHEMATICAL AND COMPUTATIONAL BIOLOGY TRACK

Replace MATH 109/110 with either:

	<i>Qtr. and Units</i>
BIOSCI 221. Methods of Theoretical Population Biology	A 4
or MATH 135. Nonlinear Dynamic Systems	W 3

Replace STATS 191/203 by

STATS/BIOSCI 141. Biostatistics	A,W 4-5
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Replace MS&E 121/STATS 217 by

STATS 215. Statistical Models in Biology (not given 2004-05)	
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Take at least 2 courses from the Biological Sciences core:

	<i>Units</i>
BIOSCI 41. Genetics and Biochemistry	A 5
BIOSCI 42. Cell Biology and Animal Physiology	W 5
BIOSCI 43. Plant Biology, Evolution, and Ecology	S 5

Take a third course either from the Core or

BIOSCI 133. Genetics of Prokaryotes	A 3
BIOSCI 134. Replication of DNA	W 3
BIOSCI 136. Evolutionary Paleobiology	A 4
or BIOSCI 203. Advanced Genetics	A 4

Honors students should take 3 of the following:

ANTHSCI 14. Intro. to Anthropological Genetics	S 5
ANTHSCI 187. The Genetic Structure of Populations (not given 2004-05)	
ANTHSCI 188. Research in Anthropological Genetics	A,W 1-5
BIOSCI 113. Fundamentals of Molecular Evolution (not given 2004-05)	
BIOSCI 146. Population Studies	W 1
BIOSCI 221. Methods of Theoretical Population Biology	A 4
BIOSCI 283. Theoretical Population Genetics	A 3

**MINORS**

The minor in Mathematical and Computational Science is intended to provide an experience of the 4 constituent areas: Computer Science (CS), Mathematics (MATH), Management Science and Engineering (MS&E), and Statistics (STATS). Four basic courses are required:

CS 106X. Programming Methodology and Abstractions (Accelerated)  
or CS 106A,B. Programming Methodology  
MATH 51. Linear Algebra and Differential Calculus of Several Variables  
or MATH 103. Matrix Theory and its Applications  
ENGR 62. Introduction to Optimization  
or MS&E 121. Introduction to Stochastic Modeling  
STATS 116. Theory of Probability  
or STATS 191. Introduction to Applied Statistics

In addition to the above, the minor requires a total of 3 courses from the following, two of which must be in different departments:

CS 107. Programming Paradigms  
CS 137. Introduction to Scientific Computing (same as CME 108)  
CS 138. MATLAB and MAPLE for Science and Engineering Applications  
CS 154. Introduction to Automata and Complexity Theory  
EE 261. The Fourier Transform and its Applications  
ECON 102C. Advanced Topics in Econometrics  
ECON 160. Game Theory and Economic Applications (prerequisite ECON 51)  
MS&E 211. Linear and Nonlinear Optimization  
MS&E 212. Network and Integer Optimization  
MS&E 221. Stochastic Modeling  
MS&E 251. Stochastic Decision Models  
MATH 103. Matrix Theory and Its Applications  
MATH 106. Functions of a Complex Variable  
MATH 108. Introduction to Combinatorics and its Applications  
MATH 109. Applied Group Theory  
MATH 110. Applied Number Theory and Field Theory  
MATH 115. Functions of a Real Variable  
or MATH 171. Fundamental Concepts of Analysis  
MATH 131. Partial Differential Equations I  
MATH 132. Partial Differential Equations II  
MATH 135. Nonlinear Dynamics and Chaos  
PHIL 160A. First-Order Logic  
STATS 200. Introduction to Statistical Inference  
STATS 202. Data Analysis  
STATS 203. Introduction to Regression Models and Analysis of Variance  
STATS 217. Introduction to Stochastic Processes

Other upper-division courses appropriate to the program major may be substituted with the consent of the program director. Undergraduate majors in the constituent programs cannot count courses in their own departments.

**HONORS PROGRAM**

The honors program is designed to encourage a more intensive study of mathematical sciences than the B.S. program. In addition to meeting all requirements for the B.S., the student must:

1. Maintain an average letter grade equivalent in mathematical sciences courses of at least a 3.4.
2. Complete at least 15 units in mathematical sciences in addition to the requirements for the major listed above. These courses should form a sustained effort in one area and constitute a program approved by the committee in charge of the Mathematical and Computational Science Program.
3. Include in the above 15 units at least one of the following:
  - a) an approved higher-level graduate course
  - b) participation in a small group seminar
  - c) at least three units of directed reading

Students interested in doing honors work should consult with their advisers by the last quarter of the junior year to prepare a program of study for submission to the committee in charge for approval. Honors work may be concentrated in many fields outside the Mathematical and Computational Science programs, for example, biological sciences, medicine, physics.

**COURSES**

**MCS 100. Mathematics of Sports**—(Same as STATS 50.) The use of mathematics, statistics, and probability in the analysis of sports performance, sports records, and strategy. Topics include mathematical analysis of the physics of sports and determinations of optimal strategies. New diagnostic statistics and strategies for each sport. Corequisite: STATS 116.  
*3 units (Cover) not given 2004-05*

**MATHEMATICS**

*Emeriti: (Professors)* Kai Lai Chung, Robert Finn, Samuel Karlin, Joseph Keller, Georg Kreisel, Harold Levine, Robert Osserman, Hans Samelson, Mary Sunseri

*Chair:* Richard Schoen

*Professors:* Gregory Brumfiel, Daniel Bump, Gunnar Carlsson, Paul J. Cohen, Ralph L. Cohen, Amir Dembo, Persi Diaconis, Yakov Eliashberg, Solomon Feferman, Yitzhak Katznelson, Steven Kerckhoff, Jun Li, Tai-Ping Liu, Rafe Mazzeo, R. James Milgram, Donald S. Ornstein, George Papanicolaou, Karl Rubin, Richard Schoen, Leon Simon, Brian White, Horng-Tzer Yau

*Assistant Professors:* Eleny Ionel, Doron Levy, Ravi Vakil

*Szegö Assistant Professors:* Benjamin Brubaker, Adrian Clinger, Razvan Fetecau, Tianhong Li, Brian Munson, Mihran Papikian

*Courtesy Professors:* Renata Kallosh, Grigoriy Mints

*Lecturers:* Alexander Elgart, Mark Lucianovic, Benjamin Schlein

*Visiting Professor:* Alice Silverberg

*Web site:* <http://math.stanford.edu>

Courses given in Mathematics have the subject code MATH. For a complete list of subject codes, see Appendix.

The Department of Mathematics offers programs leading to the degrees of Bachelor of Science, Master of Science, and Doctor of Philosophy in Mathematics, and participates in the program leading to the B.S. in Mathematical and Computational Science. The department also participates in the M.S. and Ph.D. degree programs in Scientific Computing and Computational Mathematics and the M.S. degree program in Financial Mathematics.

**ADVANCED PLACEMENT FOR FRESHMEN**

Students of unusual ability in mathematics often take one or more semesters of college-equivalent courses in mathematics while they are still in high school. Under certain circumstances, it is possible for such students to secure both advanced placement and credit toward the bachelor's degree. A decision as to placement and credit is made by the department after consideration of the student's performance on the Advanced Placement Examination in Mathematics (forms AB or BC) of the College Entrance Examination Board, and also after consideration of transfer credit in mathematics from other colleges and universities.

The department does not give its own advanced placement examination. Students can receive either 5 or 10 units of advanced placement credit, depending on their scores on the CEEB Advanced Placement Examination. Entering students who have credit for two quarters of single variable calculus (10 units) are encouraged to enroll in MATH 51-53 in multivariable mathematics, or the honors version 51H-53H. These three-course sequences, which can be completed during the freshman year, supply the necessary mathematics background for most majors in science and engineering. They also serve as excellent background for the major or minor in Mathematics, or in Mathematical and Computational Science. Students who have credit for one quarter of single variable calculus (5 units) should take MATH 42 in the Autumn Quarter and 51 in Winter Quarter. Options available in the Spring Quarter include MATH 52, 53, or 103. For proper placement, contact the Department of Mathematics.

**UNDERGRADUATE PROGRAMS****BACHELOR OF SCIENCE**

The following department requirements are in addition to the University's basic requirements for the bachelor's degree:

**MAJORS**

Students wishing to major in Mathematics must satisfy the following requirements:

1. Department of Mathematics courses totaling at least 49 units credit; such courses must be taken for a letter grade. For the purposes of this requirement, courses crosslisted with another department, such as

MATH 105 (STATS 116) and MATH 160A and 160B (PHIL 151 and 152), count as Department of Mathematics courses.

2. Additional courses taken from Department of Mathematics courses numbered 100 and above or from approved courses in other disciplines with significant mathematical content, totaling at least 15 units credit. At least 9 of these units must be taken for a letter grade.
3. A Department of Mathematics adviser must be selected, and the courses selected under items '1' and '2' above must be approved by the department's director of undergraduate study, acting under guidelines laid down by the department's Committee for Undergraduate Affairs. The Department of Mathematics adviser can be any member of the department's faculty.
4. To receive the department's recommendation for graduation, a student must have been enrolled as a major in the Department of Mathematics for a minimum of two full quarters, including the quarter immediately before graduation. In any case, students are strongly encouraged to declare as early as possible, preferably by the end of the sophomore year.

Students are normally expected to complete either the sequence 19, 20, 21 or the sequence 41, 42 (but not both). Students with an Advanced Placement score of at least 4 in BC math or 5 in AB math may receive 10 units credit and fulfill requirement '1' by taking at least 39 units of Department of Mathematics courses numbered 51 and above. Students with an Advanced Placement score of at least 3 in BC math or at least 4 in AB math may receive 5 units credit and fulfill requirement '1' by taking at least 44 units of Department of Mathematics courses numbered 42 and above.

Sophomore seminar courses may be counted among the choice of courses under item '1'. Other variations of the course requirements laid down above (under items '1' and '2') may, in some circumstances, be allowed. For example, students transferring from other universities may be allowed credit for some courses completed before their arrival at Stanford. However, at least 24 units of the 49 units under item '1' above and 9 of the units under item '2' above must be taken at Stanford. In all cases, approval for variations in the degree requirements must be obtained from the department's Committee for Undergraduate Affairs. Application for such approval should be made through the department's director of undergraduate study.

It is to be emphasized that the above regulations are minimum requirements for the major; students contemplating graduate work in mathematics are strongly encouraged to include the courses 116, 120, 121, 147 or 148, and 171 in their selection of courses, and in addition, take at least three Department of Mathematics courses over and above the minimum requirements laid out under items '1' and '2' above, including at least one 200-level course. Such students are also encouraged to consider the possibility of taking the honors program, discussed below.

To help develop a sense of the type of course selection (under items '1' and '2' above) which would be recommended for math majors with various backgrounds and interests, see the following examples. These represent only a few of a very large number of possible combinations of courses that could be taken in fulfillment of the Mathematics major requirements:

*Example 1*—A general program (a balanced program of both pure and applied components, without any particular emphasis on any one field of mathematics or applications) as follows:

- a) either MATH 19, 20 and 21, or 41 and 42 (or satisfactory Advanced Placement credit); 51, 52, 53; 103; 106; 109; 110; 115
- b) plus any selection of at least eight of the following courses, including three Department of Mathematics courses: MATH 105 (STATS 116), 108, 131, 132, 143, 147, 148, 152, 161, 173; PHYSICS 51, 53, 55; CS 137; ECON 50. (These specific courses from other departments are only meant as an example. There are many suitable courses in several departments which can be taken to fulfill part or all of requirement 2.)

*Example 2*—A theoretical program (recommended for those contemplating possible later graduate work (see, also, the discussion of the honors program below), providing an introduction to the main areas of mathematics both broader and deeper than the general program outlined above):

- a) either MATH 19, 20 and 21, or 41 and 42 (or satisfactory Advanced Placement credit)
- b) either the sequence 51, 52, 53, or the sequence 51H, 52H, 53H; 106 or 116; 113; 120; 171
- c) plus nine or more of the following courses, including at least one from each group: algebra sequence 114, 121, 152, 153, 156; analysis sequence 131, 132, 135, 151, 174A,B, 175; geometry/topology sequence 143, 145, 147, 148, 173; logic and set theory sequence 160A,B, 161.

In addition, those contemplating eventual graduate work in Mathematics should seriously consider including at least one graduate-level math course such as MATH 205A, 210A, or 215A or B. Such students should also consider the possibility of entering the honors program.

(Students taking 51, 52, 53 rather than 51H, 52H, 53H should consider taking 113 before attempting 114.)

*Example 3\**—An Applied Mathematics program:

- a) either MATH 19, 20, and 21; or 41 and 42 (or satisfactory Advanced Placement credit); 51, 52, 53; 103; 105 (Statistics 116); 106; 108; 109; 110; 115; 131
- b) plus at least 15 units of additional courses in Applied Mathematics, including, for example, suitable courses from the departments of Physics, Computer Science, Economics, Engineering, and Statistics.

\* Students with interests in applied mathematics, but desiring a broader-based program than the type of program suggested in Example 3, including significant computational and/or financial and/or statistical components, are encouraged to also consider the Mathematics and Computational Science program.

## MINORS

To qualify for the minor in Mathematics, a student should successfully complete, for a letter grade, at least six Department of Mathematics courses numbered 51 or higher, totaling a minimum of 24 units. It is recommended that these courses include either the sequence 51, 52, 53 or the sequence 51H, 52H, 53H. At least 12 of the units applied toward the minor in Mathematics must be taken at Stanford. The policy of the Mathematics Department is that no courses other than the MATH 50 series and below may be double-counted toward any other University major or minor.

## HONORS PROGRAM

The honors program is intended for students who have strong theoretical interests and abilities in mathematics. The goal of the program is to give students a thorough introduction to the main branches of mathematics, especially analysis, algebra, and geometry. Through the honors thesis, students may be introduced to a current or recent research topic, although occasionally more classical projects are encouraged. The program provides an excellent background with which to enter a master's or Ph.D. program in Mathematics. Students successfully completing the program are awarded a B.S. in Mathematics with Honors.

It is recommended that the sequence 51H, 52H, 53H be taken in the freshman year. Students who have instead taken the sequence 51, 52, 53 in their freshman year may be permitted to enter the honors program, but such entry must be approved by the Department of Mathematics Committee for Undergraduate Affairs.

To graduate with a B.S. in Mathematics with Honors, the following conditions apply in addition to the usual requirements for math majors:

1. The selection of courses under items '1' and '2' above must include all the math courses 106 or 116, 120, 171 and also must include seven or more additional courses, with at least one from each of the groups: algebra sequence 114, 121, 152, 153, 156; analysis sequence 131, 132, 135, 151, 174A, 174B, 175, 176; geometry/topology sequence 143, 145, 147, 148, 173; logic and set theory sequence 160A, 160B, 161.
2. Students in the honors program must write a senior thesis. In order to facilitate this, the student must, by the end of the junior year, choose an undergraduate thesis adviser from the Department of Mathematics faculty, and map out a concentrated reading program under the direction and guidance of the adviser. During the senior year, the student must enroll in MATH 197 for a total of 6 units (typically spread over two quarters), and work toward completion of the thesis under

the direction and guidance of the thesis adviser. The thesis may contain original material, or be a synthesis of work in current or recent research literature. The 6 units of credit for MATH 197 are required in addition to the course requirements laid out under items '1' and '2' above and in addition to all other requirements for math majors.

In addition to the minimum requirements laid out above, it is strongly recommended that students take at least one graduate-level course (that is, at least one course in the 200 plus range). MATH 205A, 210A, and 215A or B are especially recommended in this context.

Students with questions about the honors program should see the Director of Undergraduate Advising.

## BACHELOR OF SCIENCE IN MATHEMATICAL AND COMPUTATIONAL SCIENCE

The Department of Mathematics participates with the departments of Computer Science, Management Science and Engineering, and Statistics in a program leading to a B.S. in Mathematical and Computational Science. See the "Mathematical and Computational Science" section of this bulletin.

## GRADUATE PROGRAMS

### MASTER OF SCIENCE

The University's basic requirements for the master's degree are discussed in the "Graduate Degrees" section of this bulletin. Students entering Stanford in 2001 or later should pay particular attention to the University's course requirements for graduate degrees. The following are specific departmental requirements:

Candidates must complete an approved course program of 45 units of courses beyond the department requirements for the B.S. degree, of which at least 36 units must be Mathematics Department courses, taken for a letter grade. The Mathematics courses must include at least 18 units numbered 200 or above. The candidate must have a grade point average (GPA) of 3.0 (B) over all course work taken in Mathematics, and a GPA of 3.0 (B) in the 200-level courses considered separately. Course work for the M.S. degree must be approved during the first quarter of enrollment in the program by the department's Director of Graduate Studies.

For the M.S. degree in Financial Mathematics, see the "Financial Mathematics" section of this bulletin.

### TEACHING CREDENTIALS

For information concerning the requirements for teaching credentials, see the "School of Education" section of this bulletin or address inquiries to Credential Secretary, School of Education.

### MASTER OF ARTS IN TEACHING (MATHEMATICS)

In cooperation with the School of Education, the department offers a program leading to a Master of Arts in Teaching (Mathematics). It is intended for candidates who have a teaching credential or relevant teaching experience and wish to strengthen their academic preparation. Detailed requirements are outlined under the "School of Education, Master of Arts in Teaching" section of this bulletin.

### DOCTOR OF PHILOSOPHY

The University's basic requirements for the doctorate (residence, dissertation, examinations, etc.) are discussed in the "Graduate Degrees" section of this bulletin. The following are specific departmental requirements.

To be admitted to candidacy, the student must have successfully completed 27 units of graduate courses (that is, courses numbered 200 and above). In addition, the student must pass qualifying examinations given by the department.

Beyond the requirements for candidacy, the student must complete a course of study approved by the Graduate Affairs Committee of the Department of Mathematics and submit an acceptable dissertation. In accordance with University requirements, Ph.D. students must complete

a total of 135 course units beyond the bachelor's degree. These courses should be Department of Mathematics courses or approved courses from other departments. The course program should display substantial breadth in mathematics outside the student's field of application. The student must receive a grade point average (GPA) of 3.0 (B) or better in courses used to satisfy the Ph.D. requirement. In addition, the student must pass the Department area examination and the University oral examination and pass a reading examination in one foreign language, chosen from French, German, or Russian.

Experience in teaching is emphasized in the Ph.D. program. Each student is required to complete nine quarters of such experience. The nature of the teaching assignment for each of those quarters is determined by the department in consultation with the student. Typical assignments include teaching or assisting in teaching an undergraduate course or lecturing in an advanced seminar.

For further information concerning degree programs, fellowships, and assistantships, inquire of the academic associate of the department.

### PH.D. MINOR

The student should complete both of the following:\*

1. MATH 106 or 116, 131, 132
2. MATH 113, 114, 120 or 152

These courses may have been completed during undergraduate study, and their equivalents from other universities are acceptable.

In addition, the student should complete 21 units of 200-level courses in mathematics. These must be taken at Stanford and approved by the Department of Mathematics' Ph.D. minor adviser.

\* A third coherent sequence designed by the student, subject to the approval of the graduate committee, may be considered as a substitute for items '1' or '2'.

## COURSES

WIM indicates that the course satisfies the Writing in the Major requirements.

### INTRODUCTORY AND UNDERGRADUATE

The department offers two sequences of introductory courses in single variable calculus.

1. MATH 41, 42 present single variable calculus. Differential calculus is covered in the first quarter, integral calculus in the second.
2. MATH 19, 20, 21 cover the material in 41, 42 in three quarters instead of two.

There are options for studying multivariable mathematics:

1. MATH 51, 52, 53 cover differential and integral calculus in several variables, linear algebra, and ordinary differential equations. These topics are taught in an integrated fashion and emphasize application. MATH 51 covers differential calculus in several variables and introduces matrix theory and linear algebra, 52 covers integral calculus in several variables and vector analysis, 53 studies further topics in linear algebra and applies them to the study of ordinary differential equations. This sequence is strongly recommended for incoming freshmen with 10 units of advanced placement credit.
2. MATH 51H, 52H, 53H cover the same material as 51, 52, 53, but with more emphasis on theory and rigor.

The introductory course in modern algebra is Linear Algebra (103 or 113). There are no formal prerequisites for these courses, but appropriate mathematical maturity is expected. Much of the material in 103 is covered in the sequence 51, 52, 53.

**MATH 19. Calculus**—The content of MATH 19, 20, 21 is the same as the sequence MATH 41, 42 described below, but covered in three quarters, rather than two. GER:2c  
3 units, Aut (Lucianovic), Win, Sum (Staff)

**MATH 20. Calculus**—Continuation of 19. Prerequisite: 19. GER:2c  
3 units, Win (Lucianovic), Spr (Staff)

**MATH 21. Calculus**—Continuation of 20. Prerequisite: 20. GER:2c  
4 units, Spr (Lucianovic)

**MATH 41. Calculus**—Introduction to differential and integral calculus of functions of one variable. Topics: review of elementary functions including exponentials and logarithms, rates of change, and the derivative. Introduction to the definite integral and integration. Prerequisites: algebra, trigonometry. GER:2c

5 units, Aut (Meckes)

**MATH 42. Calculus**—Continuation of 41. Methods of symbolic and numerical integration, applications of the definite integral, introduction to differential equations. Infinite series. Prerequisite: 41 or equivalent. GER:2c

5 units, Aut (Elgart), Win (Meckes)

**MATH 51. Linear Algebra and Differential Calculus of Several Variables**—Geometry and algebra of vectors, systems of linear equations, matrices, vector valued functions and functions of several variables, partial derivatives, gradients, chain rule in several variables, vector fields, optimization. Prerequisite: completion of 21, 42, or a score of at least 4 on the BC Advanced Placement Examination or 5 on the AB Advanced Placement Examination, or consent of instructor. GER:2c

5 units, Aut (de Silva, Ionel, Ng, Storm, White), Win (R. Cohen, Clinger, Munson), Spr (Meckes), Sum (Staff)

**MATH 51A. Linear Algebra and Differential Calculus of Several Variables, ACE**— GER:2c

5-6 units, Aut (White), Win (R. Cohen), Spr (Meckes)

**MATH 51H. Honors Multivariable Mathematics**—For prospective math majors in the honors program and students from other areas of science or engineering who have a strong mathematics background. Three quarter sequence covers the material of 51, 52, 53, and additional advanced calculus and ordinary and partial differential equations. Provides a unified treatment of multivariable calculus, linear algebra, and differential equations with a different order of topics and emphasis from standard courses. Students should know one-variable calculus and have an interest in a theoretical approach to the subject. Prerequisite: score of 5 on BC Advanced Placement Exam, or consent of the instructor. Recommended: complete at least the first two quarters. GER:2c

5 units, Aut (Simon)

**MATH 52. Integral Calculus of Several Variables**—Iterated integrals, line and surface integrals, vector analysis with applications to vector potentials and conservative vector fields, physical interpretations. Divergence theorem and the theorems of Green, Gauss, and Stokes. Prerequisite: 51.

5 units, Aut (Staff), Win (Wieczorek), Spr (J. Li)

**MATH 52H. Honors Multivariable Mathematics**—Continuation of 51H. Prerequisite: 51H.

5 units, Win (Simon)

**MATH 53. Ordinary Differential Equations with Linear Algebra**—Linear ordinary differential equations, applications to oscillations, matrix methods including determinants, eigenvalues and eigenvectors, matrix exponentials, systems of linear differential equations with constant coefficients, stability of non-linear systems and phase plane analysis, numerical methods, Laplace transforms. Integrated with topics from linear algebra (103). Prerequisite: 51.

5 units, Aut (Zinger), Win (Liu), Spr (Mazzeo, T. Li), Sum (Staff)

**MATH 53H. Honors Multivariable Mathematics**—Continuation of 52H. Prerequisite: 52H.

5 units, Spr (Staff)

**MATH 87Q. Mathematics of Knots, Braids, Links, and Tangles**—Stanford Introductory Seminar. Preference to sophomores. Types of knots and how knots can be distinguished from one another by means of numerical or polynomial invariants. The geometry and algebra of braids, including their relationships to knots. Topology of surfaces. Brief summary of applications to biology, chemistry, and physics.

3 units, Spr (Brunmfel)

## UNDERGRADUATE AND GRADUATE

Unless stated, there are no prerequisites for the courses listed below. Where a prerequisite is stated, it may be waived by the instructor.

**MATH 103. Matrix Theory and its Applications**—Linear algebra and matrices, emphasizing the computational and algorithmic aspects and the scientific problems in which matrix theory is applied. Solution of linear equations. Linear spaces and matrices. Orthogonal projection and least squares. Determinants, eigenvalues, and eigenvectors. GER:2c

3 units, Aut (T. Li, Thiem), Win (Elling, Thiem), Spr (Durrleman, Gromoll), Sum (Staff)

**MATH 105. Theory of Probability**—(Enroll in STATS 116.)

3-5 units Aut (Taylor), Spr, Sum (Staff)

**MATH 106. Functions of a Complex Variable**—Complex numbers, analytic functions, Cauchy-Riemann equations, complex integration, Cauchy integral formula, residues, elementary conformal mappings. Prerequisite: 52.

3 units Aut (Galatius), Sum (Staff)

**MATH 108. Introduction to Combinatorics and its Applications**—Topics: graphs, trees (Cayley's Theorem, application to phylogony), eigenvalues, basic enumeration (permutations, Stirling and Bell numbers), recurrences, generating functions, basic asymptotics. Prerequisites: 51 or 103 or equivalent.

3 units, Aut (Thiem)

**MATH 109. Applied Group Theory**—Applications of the theory of groups. Topics: elements of group theory, groups of symmetries, matrix groups, group actions, and applications to combinatorics and computing. Applications: rotational symmetry groups, the study of the Platonic solids, crystallographic groups and their applications in chemistry and physics. WIM

3 units, Win (Brubaker)

**MATH 110. Applied Number Theory and Field Theory**—Introduction to number theory and its applications to modern cryptography. Topics: congruences, finite fields, primality testing and factorization, public key cryptography, error correcting codes, and elliptic curves, with emphasis throughout on algorithms. WIM

3 units, Spr (Brubaker)

**MATH 111. Computational Commutative Algebra**—Introduction to the theory of commutative rings, ideals, and modules. Systems of polynomial equations in several variables from the algorithmic viewpoint. Groebner bases, Buchberger's algorithm, elimination theory. Applications to algebraic geometry and to geometric problems.

3 units, Win (Lucianovic)

**MATH 113. Linear Algebra and Matrix Theory**—Algebraic properties of matrices and their interpretation in geometric terms. The relationship between the algebraic and geometric points of view and matters fundamental to the study and solution of linear equations. Topics: linear equations, vector spaces, linear dependence, bases and coordinate systems; linear transformations and matrices; similarity; eigenvectors and eigenvalues; diagonalization.

3 units, Aut (Katznelson), Win (Milgram)

**MATH 114. Linear Algebra and Matrix Theory II**—Continuation of 113. Deeper study of 113 topics plus additional topics from invariant subspaces, canonical forms of matrices; minimal polynomials and elementary divisors; vector spaces over arbitrary fields; inner products; Jordan normal forms; Hermitian and unitary matrices; multilinear algebra; applications.

3 units, Win (Katznelson), Spr (Milgram)

**MATH 115. Functions of a Real Variable**—The development of real analysis in Euclidean space: sequences and series, limits, continuous functions, derivatives, integrals. Basic point set topology. Honors math majors and students who intend to do graduate work in mathematics should take 171. Prerequisite: 51.

3 units, Aut (Durrleman), Win (Gromoll)

**MATH 116. Complex Analysis**—Analytic functions, Cauchy integral formula, power series and Laurent series, calculus of residues and applications, conformal mapping, analytic continuation, introduction to Riemann surfaces, Fourier series and integrals. Applications of complex analysis to electrostatics, hydrodynamics, and theoretical physics. Prerequisite: 52.

3 units, Spr (Clingher)

**MATH 118. Numerical Analysis**—Topics: iterative methods for nonlinear equations, topics from numerical linear algebra, interpolation theory, splines, approximation of functions, and numerical differentiation and integration.

3 units, Aut (Levy)

**MATH 120. Modern Algebra**—Basic structures in algebra: groups, rings, and fields. Elements of group theory: permutation groups, finite Abelian groups, p-groups, Sylow theorems. Polynomial rings, principal ideal domains, unique factorization domains. WIM

3 units, Aut (Diaconis), Spr (Thiem)

**MATH 121. Modern Algebra II**—Continuation of 120. Fields of fractions. Solvable and simple groups. Elements of field theory and Galois theory. Prerequisite: 120.

3 units, Win (Milgram)

**MATH 131. Partial Differential Equations I**—First-order equations, classification of second-order equations. Initial-boundary value problems for heat, wave, and related equations. Separation of variables, eigenvalue problems, Fourier series, existence and uniqueness questions. Prerequisite: 53 or 130 or equivalent.

3 units, Aut (Fetecau), Win (T. Li)

**MATH 132. Partial Differential Equations II**—Laplace's equation and properties of harmonic functions. Green's functions. Distributions and Fourier transforms. Eigenvalue problems and generalized Fourier series. Numerical solutions

3 units, Spr (Nedelec)

**MATH 135. Nonlinear Dynamics and Chaos**—Topics: one- and two-dimensional flows, bifurcations, phase plane analysis, limit cycles and their bifurcations. Lorenz equations, fractals and strange attractors. Prerequisite: 51 and 53 or equivalent.

3 units, Win (White)

**MATH 136. Stochastic Processes**—Introduction to measure theory,  $L_p$  spaces and Hilbert spaces. Random variables, expectation, conditional expectation, conditional distribution. Uniform integrability, almost sure and  $L_p$  convergence. Stochastic processes: Definition, stationarity, sample path continuity. Examples: random walk, Markov chains, Gaussian processes, Poisson processes, Martingales. Construction and basic properties of Brownian motion. Prerequisites: STATS 116, or MATH 151 or equivalent. Recommended: 115 or equivalent.

3 units, Aut (Dembo)

**MATH 139. Introduction to the Mathematics of Medical Imaging**—The mathematical background behind medical imaging problems. Basic model is X-ray tomography. Topics within the context of tomography include the Radon transform and its inversion formula, Fourier and Fourier series, sampling and filtering. Prerequisites: intermediate to advanced undergraduate; multivariable calculus; linear algebra.

3 units, Win (Mazzeo)

**MATH 143. Differential Geometry**—Geometry of curves and surfaces in three-space and higher dimensional manifolds. Parallel transport, curvature, and geodesics. Surfaces with constant curvature. Minimal surfaces.

3 units, Aut (Khuri)

**MATH 145. Algebraic Geometry**—Real algebraic curves, Hilbert's nullstellensatz, complex affine and projective curves, Bezout's theorem, the degree/genus formula, Riemann surfaces, Riemann-Roch theorem. Prerequisites: 106 or 116 or either 120 or 109. Recommended: familiarity with surfaces, e.g., from one of 143, 147, 148, or 173.

3 units, Spr (Clingher)

**MATH 147. Differential Topology**—Smooth manifolds, transversality, Sard's theorem, embeddings, degree of a map, Borsuk-Ulam theorem, Hopf degree theorem, Jordan curve theorem. Prerequisite: 115 or 171.

3 units (Staff) alternate years, given 2005-06

**MATH 148. Algebraic Topology**—Fundamental group, covering spaces, Euler characteristic, homology, classification of surfaces, knots. Prerequisite: 109 or 120.

3 units, Spr (R. Cohen)

**MATH 151. Introduction to Probability Theory**—Counting; axioms of probability; conditioning and independence; expectation and variance; discrete and continuous random variables and distributions; joint distributions and dependence; central limit theorem and laws of large numbers. Prerequisite: 52 or consent of instructor.

3 units, Win (Liu)

**MATH 152. Elementary Theory of Numbers**—Euclid's algorithm, fundamental theorems on divisibility; prime numbers, congruence of numbers; theorems of Fermat, Euler, Wilson; congruences of first and higher degrees; Lagrange's theorem and its applications; quadratic residues; introduction to the theory of binary quadratic forms.

3 units, Spr (Bump)

**MATH 156. Group Representations**—Designed for undergraduates. Experimental, primarily examining symmetries on objects such as vector spaces ("group representations"), geometric objects ("geometric group actions"), and discrete sets (combinatorics). Topics: group representations and their characters, classification of permutation group representations using partitions and Young tableaux, group actions on sets and the Burnside ring, and spherical space forms. Prerequisites: basic knowledge of linear algebra (51 and 53, or 103 or 113) and group theory (109 or 120).

3 units, Aut (Milgram)

**MATH 160A. First-Order Logic**—(Enroll in PHIL 151/251.)

4 units, Win (Seegerberg)

**MATH 160B. Computability and Logic**—(Enroll in PHIL 152/252.)

4 units, Spr (Seegerberg)

**MATH 161. Set Theory**—Informal and axiomatic set theory: sets, relations, functions, and set-theoretical operations. The Zermelo-Fraenkel axiom system and the special role of the axiom of choice and its various equivalents. Well-orderings and ordinal numbers; transfinite induction and transfinite recursion. Equinumerosity and cardinal numbers; Cantor's Alephs and cardinal arithmetic. Open problems in set theory.

3 units, Win (White)

**MATH 162. Philosophy of Mathematics**—(Enroll in PHIL 162/262.)

4 units, Spr (Staff)

**MATH 171. Fundamental Concepts of Analysis**—Recommended for math majors and required of honors math majors. Similar to 115 but altered content and more theoretical orientation. Properties of Riemann integrals, continuous functions and convergence in metric spaces; compact metric spaces, basic point set topology. Prerequisites: either 51, 52, 53; or 51H, 52H, 53H. WIM

3 units, Aut (Kerckhoff), Spr (Fetecau)

**MATH 173. Analysis on Manifolds**—Differentiable manifolds, tangent space, submanifolds, implicit function theorem, differential forms, vector and tensor fields. Frobenius' theorem, DeRham theory. Prerequisite: 52 or 52H.

3 units, Win (Galatius)

**MATH 174A,B. Topics in Analysis and Differential Equations with Applications**—For students planning graduate work in mathematics or physics, and for honors math majors and other students at ease with rigorous proofs and qualitative discussion. 174A topics may include: geometric theory of ODE's with applications to dynamics; mathematical foundations of classical mechanics including variational principles, Lagrangian and Hamiltonian formalisms, theory of integrable systems;

theorems of existence and uniqueness; Sturm-Liouville theory. 174B topics may include: introduction to PDEs including transport equations, Laplace, wave, and heat equations; techniques of solution including separation of variables and Green's functions; Fourier series and integrals; introduction to the theory of distributions; mathematical foundations of quantum mechanics. Prerequisite: 53H or 171, or consent of instructor.

3 units (Staff) not given 2004-05

**MATH 175. Elementary Functional Analysis**—Linear operators on Hilbert space. Spectral theory of compact operators; applications to integral equations. Elements of Banach space theory. Prerequisite: 115 or 171.

3 units, Spr (Elgart)

**MATH 180. Introduction to Financial Mathematics**—Financial derivatives: contracts and options. Hedging and risk management. Arbitrage, interest rate, and discounted value. Geometric random walk and Brownian motion as models of risky assets. Initial boundary value problems for the heat and related partial differential equations. Self-financing replicating portfolio. Black-Scholes pricing of European options. Dividends. Implied volatility. Optimal stopping and American options. Prerequisite: 53. Corequisites: 131, 151 or STATS 116.

3 units, Aut (Durrleman)

**MATH 197. Senior Honors Thesis**

1-6 units, Aut, Win, Spr (Staff)

**MATH 199. Independent Work**—Undergraduates pursue a reading program; topics limited to those not in regular department course offerings. Credit can fulfill the elective requirement for math majors. Approval of Undergraduate Affairs Committee is required to use credit for honors majors area requirement.

1-3 units, Aut, Win, Spr (Staff)

## PRIMARILY FOR GRADUATE STUDENTS

**MATH 201. Practical Training**—Registration restricted to students in the M.S. degree program in Financial Mathematics. Students obtain employment in a relevant industrial or research activity, chosen to enhance their professional experience, and consistent with the MSFM degree program. Prerequisite: consent of adviser.

1-3 units, Aut, Win, Spr, Sum (Dembo)

**MATH 205A. Real Analysis**—Basic measure theory and the theory of Lebesgue integration. Prerequisite: 171 or equivalent.

3 units, Aut (Simon)

**MATH 205B. Real Analysis**—Point set topology, basic functional analysis, Fourier series, and Fourier transform. Prerequisites: 171 and 205A or equivalent.

3 units, Win (Mazzeo)

**MATH 205C. Real Analysis**—Continuation of 205B.

3 units, Spr (P. Cohen)

**MATH 210A. Modern Algebra**—Groups, rings, and fields, introduction to Galois theory. Prerequisite: 120 or equivalent.

3 units, Aut (Vakil)

**MATH 210B. Modern Algebra**—Galois theory. Ideal theory, introduction to algebraic geometry and algebraic number theory. Prerequisite: 210A.

3 units, Win (Brumfiel)

**MATH 210C. Modern Algebra**—Continuation of 210B. Representations of groups and noncommutative algebras, multilinear algebra.

3 units, Spr (Bump)

**MATH 215A. Complex Analysis, Geometry, and Topology**—Analytic functions, complex integration, Cauchy's theorem, residue theorem, argument principle, conformal mappings, Riemann mapping theorem, Picard's theorem, elliptic functions, analytic continuation and Riemann surfaces.

3 units, Aut (J. Li)

**MATH 215B. Complex Analysis, Geometry, and Topology**—(MATH 215A is not a prerequisite for 215B.) Topics: fundamental group and covering spaces, homology, cohomology, products, basic homotopy theory, and applications. Prerequisites: 113, 120, and 171, or equivalent.

3 units, Win (Kerckhoff)

**MATH 215C. Complex Analysis, Geometry, and Topology**—Differentiable manifolds, transversality, degree of a mapping, vector fields, intersection theory, and Poincaré duality. Differential forms and the DeRham theorem. Prerequisite: 215B or equivalent.

3 units, Spr (R. Cohen)

**MATH 216A,B. Introduction to Algebraic Geometry**—Basic notions in algebraic geometry. Algebraic curves, algebraic varieties, sheaves, cohomology, Riemann-Roch theorem. Classification of algebraic surfaces, moduli spaces, deformation theory and obstruction theory, the notion of schemes.

3 units (Staff) not given 2004-05

**MATH 217A. Differential Geometry**—Smooth manifolds and submanifolds, tensors and forms, Lie and exterior derivative, deRham cohomology, distributions and the Frobenius theorem, vector bundles, connection theory, parallel transport and curvature, affine connections, geodesics and the exponential map, connections on the principal frame bundle. Prerequisite: 173 or equivalent.

3 units, Aut (Khuri)

**MATH 217B. Differential Geometry**—Riemannian manifolds, Levi-Civita connection, Riemann curvature tensor, Riemannian exponential map and geodesic normal coordinates, Jacobi fields, completeness, spaces of constant curvature, bi-invariant metrics on compact Lie groups, symmetric and locally symmetric spaces, equations for Riemannian submanifolds and Riemannian submersions. Prerequisite: 217A.

3 units, Win (Ionel)

**MATH 217C. Differential Geometry**—First and second variation of arc length, index form and variational theory of geodesics, comparison theorems and consequences for manifolds of positive and negative curvature, almost complex manifolds and integrability, Hermitian and Kaehler metrics, connections on complex vector bundles and Chern classes, Hodge theory, vanishing theorems in the Riemannian and Kaehler settings.

3 units, Spr (Ionel)

**MATH 220A. Partial Differential Equations of Applied Mathematics**—First-order partial differential equations, method of characteristics, weak solutions, conservation laws, hyperbolic equations, separation of variables, Fourier series, Kirchoff's formula, Huygen's principle, and hyperbolic systems. Prerequisite: solid foundation in multivariable calculus and ordinary differential equations.

3 units, Aut (Liu)

**MATH 220B. Partial Differential Equations of Applied Mathematics**—Parabolic and elliptic partial differential equations. Eigenvalue problems, Green's functions, properties of harmonic functions, potential theory, Fourier series and Fourier transform. Prerequisite: 52 and 53 or equivalent.

3 units, Win (Levy)

**MATH 220C. Partial Differential Equations of Applied Mathematics**—Asymptotics for integrals: Laplace method, stationary phase, saddle point method, applications. Rayleigh-Schroedinger perturbation theory, boundary layers for ODE, boundary layers for PDE. Multiple scales for oscillations, multiple scales and homogenization, PDE with oscillating coefficients. High Frequency asymptotics, geometrical optics.

3 units, Spr (Papanicolaou)

**MATH 222A. Computational Methods for Fronts, Interfaces and Waves**—High-order methods for multidimensional systems of conservation laws and Hamilton-Jacobi equations (central schemes, discontinuous Galerkin methods, relaxation methods). Level set methods and fast marching methods. Computation of multi-valued solutions. Multi-scale

analysis, including wavelet-based methods. Boundary schemes (perfectly matched layers). Examples from (but not limited to) geometrical optics, transport equations, reaction-diffusion equations, imaging, and signal processing.

3 units (Staff) not given 2004-05

**MATH 224. Topics in Mathematical Biology**—Mathematical models for biological processes based on ordinary and partial differential equations. Topics: population and infectious diseases dynamics, biological oscillators, reaction diffusion models, biological waves, and pattern formation. Prerequisites: 53 and 131, or equivalents.

3 units, Win (Levy)

**MATH 228A. Ergodic Theory**—Measure preserving transformations and flows, ergodic theorems, mixing properties, spectrum, Kolmogorov automorphisms, entropy theory. Examples. Classical dynamical systems, mostly geodesic and horocycle forms on homogeneous spaces of  $SL(2, \mathbb{R})$ . Prerequisites: 205A,B.

3 units, 228A: Win, 228B: Spr (Ornstein)

**MATH 230A,B,C. Theory of Probability**—(Enroll in STATS 310A,B,C.)

2-4 units, A: Aut (Dembo), B: Win (Siegmund), C: Spr (Lai)

**MATH 232. Topics in Probability**—Possible topics include Brownian motion, coarse graining, concentration inequalities, discrete probability, Gibbs measures, interacting particle systems, percolation, random matrices, Poisson approximation, lace expansions. Prerequisite: exposure to measure theoretic probability and stochastic processes.

3 units (Staff) not given 2004-05

**MATH 234. Large Deviations**—(Same as STATS 374.) Combinatorial estimates and the method of types. Large deviation probabilities for partial sums and for empirical distributions, Cramer's and Sanov's theorems and their Markov extensions. Applications in statistics, information theory, and statistical mechanics. Prerequisite: 230A or STATS 310.

3 units (Staff) not given 2004-05

**MATH 235A. Selected Topics in Ergodic Theory**—Topics from the Kolmogorov-Sinai theory of entropy; the isomorphism theorem for Bernoulli shifts and Bernoulli flows; K-automorphisms applications to mechanical systems, and automorphisms of compact groups.

3 units (Staff) not given 2004-05

**MATH 235B. Selected Topics in Ergodic Theory**—Topics from the theory of flows on homogeneous spaces, with emphasis on applications to number theory. Ergodic theorems, unique ergodicity and equidistribution, horocyclic and geodesic flows. Howe-Moore theorem, Hedlund and Furstenberg theorems on the horocyclic flow, the Margulis lemma, Openheim's conjecture, Ragunathan's conjecture and Ratner's theorem. Rigidity of some algebraic  $\mathbb{R}^d$  and  $\mathbb{Z}^d$  actions.

3 units (Staff) not given 2004-05

**MATH 235C. Selected Topics in Ergodic Theory**

3 units (Staff) not given 2004-05

**MATH 236. Introduction to Stochastic Differential Equations**—Brownian motion, stochastic integrals, and diffusions as solutions of stochastic differential equations. Functionals of diffusions and their connection with partial differential equations. Random walk approximation of diffusions. Prerequisite: 136 or equivalent and differential equations.

3 units, Win (Papanicolaou)

**MATH 237. Topics in Stochastic Analysis: Credit Risk**—The analysis of structural models for credit default starting from the Black-Scholes-Merton theory and continuing with stochastic volatility models. The theory of reduced models of default risk and doubly stochastic, intensity-based, default models. Connections with actuarial insurance problems. Hybrid structural and intensity based models for the pricing of defaultable bonds and credit default swaps. Extensions to multi-asset models with correlated defaults.

3 units, Spr (Papanicolaou)

**MATH 238. Mathematical Finance**—(Same as STATS 250. Formerly MATH 241.) Stochastic models of financial markets. Forward and futures contracts. European options and equivalent martingale measures. Hedging strategies and management of risk. Term structure models and interest rate derivatives. Optimal stopping and American options.

3 units, Win (Papanicolaou)

**MATH 239. Computation and Simulation in Finance**—(Formerly MATH 240.) Monte Carlo, finite difference, tree, and transform methods for the numerical solution of partial differential equations in finance. Emphasis is on derivative security pricing.

3 units, Spr (Durrleman)

**MATH 244. Riemann Surfaces**—Compact Riemann surfaces: topological classifications, Hurwitz' formula. Riemann-Roch formula, uniformization theorem. Abel's theorem, Jacobian varieties. Some elements of harmonic analysis are developed with applications. Emphasis is on methods which are generally applicable to algebraic curves.

3 units (Staff) not given 2004-05

**MATH 245A. Topics in Algebraic Geometry**—Introduction to intersection theory in algebraic geometry.

3 units, Aut (Vakil)

**MATH 245B. Topics in Algebraic Geometry**—Introduction to moduli spaces. Topics include the moduli functors, the construction of moduli spaces, examples of moduli spaces, and the basic properties of moduli spaces of curves, stable maps, and stable vector bundles.

3 units, Spr (J. Li)

**MATH 246. Symmetric Functions and Algebraic Combinatorics**—Unified treatment of topics in classical enumeration via the study of symmetric polynomials. Classical symmetric functions, Schur functions, Young tableaux, Schensted correspondence, character theory of the symmetric group, introduction to random matrix theory. Prerequisite: 210 or equivalent.

3 units (Staff) not given 2004-05

**MATH 247. Topics in Group Theory**—Topics include the Burnside basis theorem, classification of  $p$ -groups, regular and powerful groups, Sylow theorems, the Frattini argument, nilpotent groups, solvable groups, theorems of P. Hall, group cohomology, and the Schur-Zassenhaus theorem. The classical groups and introduction to the classification of finite simple groups and its applications.

3 units, Spr (Diaconis)

**MATH 248A. Algebraic Number Theory**—Introduction to algebraic number theory: the arithmetic of local and number fields, and a brief introduction to class field theory. Prerequisite: 210A,B or equivalent.

3 units (Staff) not given 2004-05

**MATH 248B. Algebraic Number Theory**—Continuation of 248A. Topics may include modular forms, elliptic curves, and  $L$ -functions.

3 units (Staff) not given 2004-05

**MATH 249A. Topics in Representation Theory and Number Theory**—Review of basic algebraic number theory and group cohomology, class field theory, and construction of the Weil group.

3 units, Aut (Bump)

**MATH 249B. Topics in Representation Theory and Number Theory**—Continuation of 249A. Hecke and Artin  $L$ -series.

3 units, Win (Bump)

**MATH 253. Regularity of Sets and Mapping**—For students interested in any area of analysis. Topics: Lipschitz functions; smooth functions; Sobolev functions; various regularity and extension theorems including Rademacher, Kirzbraun, Whitney, and Sard. Critical sets of real-analytic, complex analytic functions. Affine approximation properties of subsets of  $\mathbb{R}^n$ , including a discussion of rectifiability and non-rectifiability, structure theorem, and Reifenberg's topological disc theorem.

3 units (Staff) not given 2004-05

**MATH 256A,B,C. Partial Differential Equations**—Introduction to the theory of linear and non-linear partial differential equations, beginning with linear theory involving use of Fourier transform and Sobolev spaces. Topics: Schauder and L2 estimates for elliptic and parabolic equations; De Giorgi-Nash-Moser theory for elliptic equations; non-linear equations, e.g., the minimal surface equation, geometric flow problems, and non-linear hyperbolic equations.

3 units, **A:** Aut, **B:** Win (Yau), **C:** not given 2004-05

**MATH 257A,B. Symplectic Geometry and Topology**—Linear symplectic geometry and linear Hamiltonian systems. Symplectic manifolds and their Lagrangian submanifolds, local properties. Symplectic geometry and mechanics. Contact geometry and contact manifolds. Relations between symplectic and contact manifolds. Hamiltonian systems with symmetries. Momentum map and its properties.

3 units, **A:** Aut, **B:** Win (Eliashberg)

**MATH 261A,B. Functional Analysis**—Geometry of linear topological spaces. Linear operators and functionals. Spectral theory. Calculus for vector-valued functions. Operational calculus. Banach algebras. Special topics in functional analysis.

3 units (Staff) not given 2004-05

**MATH 263A,B. Lie Groups and Lie Algebras**—Definitions, examples, basic properties. Semi-simple Lie algebras, their structure and classification. Cartan decomposition: real Lie algebras. Representation theory: Cartan-Stiefel diagram, weights. Weyl character formula. Orthogonal and symplectic representations. Prerequisite: 210 or equivalent.

3 units, **A:** Win (Brubaker, Munson), **B:** Spr (P. Cohen)

**MATH 266. Computational Signal Processing and Wavelets**—For students interested in theoretical and computational aspects of signal processing. Topics: time-frequency transforms; wavelet bases and wavelet packets; linear and nonlinear multiresolution approximations; estimation and restoration of signals; signal compression.

3 units, Aut (Levy)

**MATH 267A,B. Topics in Functional and Harmonic Analysis**—Topics from functional analysis and from the Lp-theory of harmonic analysis, the singular integral theory of Calderon and Zygmund and its extensions, interpolation of operators, multiplier transformations, and smoothness properties of functions. Sets of uniqueness for trigonometric series, spectral syntheses, thin sets, spectral theory of convolution operators, and applications. Prerequisite: knowledge of the elements of Fourier analysis.

3 units, **A:** Aut, **B:** Win (Katznelson)

**MATH 275. Topics in Singularity Theory**—Topics may include: jet spaces; Thom transversality theorem; h-principle type results in singularity theory with applications to topology; Thom-Boardman singularities; local classification problems and results in singularity theory; Picard-Lefschetz theory; theory of oscillating integrals; Frobenius manifolds.

3 units (Staff) not given 2004-05

**MATH 281A,B. Introduction to Algebraic and Differential Topology**—Fundamental group, covering spaces, embeddings and immersions of manifolds, transversality, homotopy theory, homology and cohomology of complexes, differential forms, Poincare Duality.

3 units (Staff) not given 2004-05

**MATH 282A. Low Dimensional Topology**—The theory of surfaces and 3-manifolds. Curves on surfaces, the classification of diffeomorphisms of surfaces, and Teichmuller space. The mapping class group and the braid group. Knot theory, including knot invariants. Decomposition of 3-manifolds: triangulations, Heegaard splittings, Dehn surgery. Loop theorem, sphere theorem, incompressible surfaces. Geometric structures, particularly hyperbolic structures on surfaces and 3-manifolds.

3 units, Aut (Kerckhoff)

**MATH 282B. Homotopy Theory**—Homotopy groups, fibrations, spectral sequences, simplicial methods, Dold-Thom theorem, models for loop spaces, homotopy limits and colimits, stable homotopy theory.

3 units, Win (Carlsson)

**MATH 282C. Fiber Bundles and Cobordism**—Possible topics: principal bundles, vector bundles, classifying spaces. Connections on bundles, curvature. Topology of gauge groups and gauge equivalence classes of connections. Characteristic classes and K-theory, including Bott periodicity, algebraic K-theory, and indices of elliptic operators. Spectral sequences of Atiyah-Hirzebruch, Serre, and Adams. Cobordism theory, Pontryagin-Thom theorem, calculation of unoriented and complex cobordism.

3 units, Spr (Brumfiel)

**MATH 283. Topics in Algebraic and Geometric Topology**

3 units, Spr (Carlsson)

**MATH 285. Geometric Measure Theory**—Hausdorff measures and dimensions, area and co-area formulas for Lipschitz maps, integral currents and flat chains, minimal surfaces and their singular sets.

3 units (Staff) not given 2004-05

**MATH 290A. Model Theory**—(Formerly same as PHIL 290A.) Language and models of the first order, predicate calculus, complete and decidable theories. Fraisse-Ehrenfeucht games. Preservation theorems. Prerequisites: 151 or equivalent.

3 units (Staff) not given 2004-05

**MATH 290B. Model Theory**—(Formerly same as PHIL 290B.) Kripke (possible world) semantics of intuitionistic and modal logics. Completeness results and strategies in automated deduction. Algebraic models. Second order systems. May be taken independently of 290A. Prerequisites: 151, 154, or equivalent.

3 units (Staff) not given 2004-05

**MATH 291A,B. Recursion Theory**—(Formerly same as PHIL 291A,B.) Theory of recursive functions and recursively enumerable sets. Turing machines and alternative approaches. Diophantine definability. Definability in formal systems. Gödel's incompleteness theorems. Recursively unsolvable problems in mathematics and logic. Introduction to recursive ordinals and hierarchies. Prerequisites: PHIL 151, PHIL 152, and MATH 161, or equivalents.

3 units (Staff) not given 2004-05

**MATH 292A,B. Set Theory**—(Formerly same as PHIL 292A,B.) The basics of axiomatic set theory; the systems of Zermelo-Fraenkel and Bernays-Gödel. Topics: cardinal and ordinal numbers, the cumulative hierarchy and the role of the axiom of choice. Models of set theory, including the constructible sets and models constructed by the method of forcing. Consistency and independence results for the axiom of choice, the continuum hypothesis and other unsettled mathematical and set-theoretical problems. Prerequisites: PHIL 151, PHIL 152, and MATH 161, or equivalents.

3 units (Staff) not given 2004-05

**MATH 293A,B. Proof Theory**—(Formerly same as PHIL 293A,B.) Gentzen's natural deduction and sequential calculi for first-order propositional and predicate logics. Normalization and cut-elimination procedures. Relationships with computational lambda calculi. Extensions to infinitary calculi; ordinal measures of complexity. Applications to the extraction of the constructive content of proofs in arithmetic and analysis. Extensions of Hilbert's consistency program. Prerequisites: PHIL 151, PHIL 152, and MATH 161, or equivalents.

3 units, **A:** Win (Feferman), **B:** (Staff) not given 2004-05

**MATH 294. Topics in Logic**—(Enroll in PHIL 354.)

3 units (Staff) not given 2004-05

**MATH 297. Algebraic Logic**—(Enroll in CS 353.)

3 units (Pratt) not given 2004-05

**MATH 360. Advanced Reading and Research**

1-9 units, Aut, Win, Spr, Sum (Staff)

**MATH 361. Research Seminar Participation**—Participation in a faculty-led seminar which has no specific course number.

1-3 units, Aut, Win, Spr, Sum (Staff)

**MATH 380-391. Graduate Seminars****MATH 380. Seminar in Applied Mathematics***1-3 units, by arrangement***MATH 381. Seminar in Analysis***1-3 units, by arrangement***MATH 384. Seminar in Geometry***1-3 units, by arrangement***MATH 385. Seminar in Topology***1-3 units, by arrangement***MATH 386. Seminar in Algebra***1-3 units, by arrangement***MATH 387. Seminar in Number Theory***1-3 units, by arrangement***MATH 388. Seminar in Probability and Stochastic Processes***1-3 units, by arrangement***MATH 389. Seminar in Mathematical Biology***1-3 units, by arrangement***MATH 391. Seminar in Logic and the Foundations of Mathematics***1-3 units, by arrangement*

**MATH 459. Frontiers in Interdisciplinary Biosciences**—(Crosslisted in departments in the schools of H&S, Engineering, and Medicine; student register through their affiliated departments; otherwise register for CHEMENG 459) See CHEMENG 459 or [http://biox.stanford.edu/courses/459\\_announce.html](http://biox.stanford.edu/courses/459_announce.html).

*1 unit, Aut, Win, Spr (Robertson)*

## MEDIEVAL STUDIES

*Director:* Philippe Buc*Committee in Charge:* Philippe Buc, Hester Gelber, Nancy S. Kollmann, William Mahrt, Jennifer Summit, Rega Wood

*Affiliated Faculty:* George H. Brown (English), Philippe Buc (History), Charlotte Fonrobert (Religious Studies), Hester Gelber (Religious Studies), Nancy S. Kollmann (History), Seth Lerer (English), Mark E. Lewis (History), William Mahrt (Music), Kathryn Miller (History, on leave), Bissera Pentcheva (Art and Art History), Orrin W. Robinson (German Studies), Jeffrey Schnapp (French and Italian), Jennifer Summit (English), Rega Wood (Philosophy)

*Program Offices:* Building 250, Room 251F*Mail Code:* 94305-2020*Department Phone:* (650) 723-3413*Email:* [dstudies.moore@stanford.edu](mailto:dstudies.moore@stanford.edu)*Web Site:* <http://www.stanford.edu/dept/medieval/>

Courses given in Medieval Studies have the subject code MEDVLST. For a complete list of subject codes, see Appendix.

The Medieval Studies Program is administered through Interdisciplinary Studies in Humanities, but the degree is conferred by the Dean of Undergraduate Studies Advisory Committee on Individually Designed Majors. The committee has approved the program as listed below. Students interested in pursuing the Medieval Studies major or minor should consult the Director of Medieval Studies. Students who are members of the Humanities Honors Program may petition to major in Medieval Studies; see the "Interdisciplinary Studies in Humanities" section of this bulletin. The major is normally declared by the beginning of the student's third year.

The major combines interdisciplinary breadth with a disciplinary focus. The interdisciplinary emphasis is provided by Medieval Studies 165, Introduction to Medieval Culture, by upper-division interdisciplinary colloquia, and by the requirement that students take courses in three different areas. Depth is ensured by the requirement that students take at least four courses in one area. A faculty adviser helps each student choose courses that integrate the requirements of breadth and depth. To that end, the following guidelines are provided.

The student should take a minimum of 60 units of course work from the list of Medieval Studies courses or appropriate alternatives approved by the director, including ten courses as follows:

1. The introductory course, MEDVLST 165, Introduction to Medieval Culture. If 165 is not offered in a given year, students may petition to take a substitute course if necessary. For 2004-05, HISTORY 100A, Europe from Late Antiquity to 1500, fulfills this requirement. Petitions should be directed to the Director of Medieval Studies, Philippe Buc, at [igorbuc@stanford.edu](mailto:igorbuc@stanford.edu).
2. Two upper-division courses, ideally with an interdisciplinary component, in any field dealing with the Middle Ages.
3. Four courses in one of the following categories:
  - a) Literature: English, French, German and Scandinavian, Italian, Latin, Slavic, Spanish
  - b) History
  - c) Art History, Drama, Music
  - d) Humanities, Philosophy, Religious Studies (certain Humanities courses may fulfill requirements within other categories)
4. Two courses in a second category from the above list.
5. One course in a third category from the above list.

Students doing the Medieval Studies concentration for the Humanities major should use these requirements as guidelines for developing their programs of study.

In addition to the ten courses, a language proficiency equal to two years of college-level study is suggested in Latin or one of the following: French, German, Italian, or Spanish.

Medieval Studies has a Writing in the Major (WIM) requirement. It can be fulfilled in one of three ways:

1. Through a course designated as WIM by a department contributing to the Medieval Studies major.
2. Through a paper in a Medieval Studies course.
3. Through an independent paper with a member of the Medieval Studies faculty.

Check with the program office regarding specific requirements for each of these options.

### MINORS

An undergraduate minor in Medieval Studies is available through the program. Students interested in completing the minor should inquire about enrollment procedures at the office of Interdisciplinary Studies in Humanities.

Requirements are as follows:

1. *Language:* in addition to the University foreign language requirement, at least a one-quarter course in a classical and/or medieval vernacular language is recommended, which may count as one of the five required courses for the minor listed under item 2a.
2. The minor consists of six courses, which include:
  - a) Medieval Studies 165, Introduction to Medieval Culture (core course). If 165 is not offered in a given year, students may petition to take a substitute course if necessary. Petitions should be directed to the Director of Medieval Studies.
  - b) an additional five courses dealing directly with the Middle Ages. If the student's major department or program offers medieval courses, he/she should take two of them for the Medieval Studies minor, but those courses may not also count for the major. At least three courses must be taken outside the student's major, selected from two or more of the following categories:
    - 1) Language and Literature
    - 2) History
    - 3) Art History, Drama, Music
    - 4) Humanities, Philosophy, Religious Studies
    - 5) From among the Medieval Studies faculty listed above, the student chooses an adviser, who assists in the selection of courses and the design of the program.

Courses applied to the minor in Medieval Studies must be taken for a letter grade. Courses applied to the minor cannot also be applied to a student's major or another minor.

## COURSES

**MEDVLST 322. Medieval Seminar**—(Same as HUMNTIES 322.) Major cultural, literary, and artistic including: the Germanic ethos and heroic ideal; Celtic culture and the Arthurian romances; Provençal lyric poetry and the courtly love tradition; the emergence of Western art from Byzantine and Gothic sources and the Italian masters of the Trecento; scholasticism and Dante and Chaucer. Texts include: *Beowulf*, the *Song of Roland*, Chrétien de Troyes, Dante, Boccaccio, Chaucer, and works on Romanesque and Gothic art.

3-5 units, Spr (Steidle)

## INTERDEPARTMENTAL OFFERINGS

Courses suitable for self-designed majors in Medieval Studies are listed below. More detailed course descriptions are found under the various department headings. See quarterly *Time Schedule* for changes in listings.

### ART AND ART HISTORY

**ARTHIST 105/305. Introduction to Medieval Art**

4 units (Pentcheva) not given 2004-05

**ARTHIST 106/306. Byzantine Art and Architecture, 300-1453**

4 units, Aut (Pentcheva)

**ARTHIST 107/307. Age of Cathedrals**

4 units (Pentcheva) not given 2004-05

**ARTHIST 187/387. Arts of War and Peace: Late Medieval and Early Modern Japan, 1500-1868**

4 units, Spr (Takeuchi)

**ARTHIST 206. Virginity and Power: Mary in the Middle Ages**

5 units (Pentcheva) not given 2004-05

**ARTHIST 207. Light and Power: Mosaics and Stained Glass Windows in the Middle Ages.**

5 units, Win (Pentcheva)

### ENGLISH

**ENGLISH 102. Chaucer**

5 units, Spr (Cooper)

**ENGLISH 171. History of the English Language**

5 units, Aut (Brown)

**ENGLISH 211. Readings in Middle English**

5 units, Spr (Cooper)

### FRENCH LITERATURE

**FRENLIT 130. Middle Ages and Renaissance France**

4 units, Aut (Pop)

### HISTORY

**HISTORY 21N. Heretics and Inquisitors**

5 units, Spr (Buc)

**HISTORY 100A. Europe from Late Antiquity to 1500**

5 units, Aut (Buc)

**HISTORY 208A/208A. Medieval Antisemitism**

5 units, Win (Buc)

**HISTORY 208D/308D. From Ha-Levi to Leon Hebreo: Medieval and Renaissance Jewish Cultures**

5 units, Win (Gutwirth)

**HISTORY 210/310. Poverty and Charity in Medieval Christianity, Judaism, and Islam**

5 units, Aut (Miller)

**HISTORY 211/311. Body, Gender, and Society in Medieval Europe**

5 units (Buc) not given 2004-05

**HISTORY 245E/345E. Artisans, Courtiers and Rabbis: Jews of Spain in the Middle Ages**

5 units, Spr (Gutwirth)

**HISTORY 288A. Jews and Christians in the Ottoman Empire**

5 units, Aut (E. Frankel)

### MUSIC

**MUSIC 40. Music History to 1600**

4 units, Aut (Gilbert)

**MUSIC 140/240. Studies in Medieval Music**

3-4 units, Aut (Gilbert) alternate years, not given 2005-06

**MUSIC 141/241. Studies in Renaissance Music**

3-4 units (Gilbert) alternate years, given 2005-06

**MUSIC 221A. History of Music Theory: Ancient Through Baroque**

4 units (Plebuch) alternate years, given 2005-06

**MUSIC 301A. Analysis of Music: Modal**

4 units, Aut (Mahrt)

**MUSIC 310. Research Seminar in Musicology**

3-5 units, Aut (Ford), Win (Hadlock), Spr (Gilbert)

### PHILOSOPHY

**PHIL 115/215. Problems in Medieval Philosophy: Scholastic Background to Kant**

3-4 units, Win (R. Wood)

**PHIL 248. Medieval Latin Paleography**

3-5 units, Spr (R. Wood)

### RELIGIOUS STUDIES

**RELIGST 3N. Murder in the Cathedral**

3 units, Aut (Gelber)

**RELIGST 305. Medieval Daoist Texts**

3-5 units (Pregadio) not given 2004-05



# MODERN THOUGHT AND LITERATURE

*Director:* David Palumbo-Liu

*Committee in Charge:* Lanier Anderson, Anthony Antonio, Khalil Barhoum, Eamonn Callan, Shelley Fisher Fishkin, Richard Ford, Theodore L. Glasser, Hans U. Gumbrecht, Pamela Lee, Andrea A. Lunsford, Purmina Mankekar, Paula Moya, David Palumbo-Liu, Robert Weisberg, Bryan Wolf, Yvonne Yarbro-Bejarano

*Affiliated Faculty:* Lanier Anderson (Philosophy), Anthony Antonio (Education), Khalil Barhoum (Literature, Culture, and Languages), Joel Beinin (History), Brett Bourbon (English), Elisabeth Boyi (French and Italian), Scott Bukatman (Art and Art History), Eamonn Callan (Education), Albert Camarillo (History), Terry Castle (English), Paulla Ebron (Cultural and Social Anthropology), Harry Elam (Drama), Shelley Fisher Fishkin (English), Jay Fliegelman (English), Richard Ford (Law), Theodore Glasser (Communication), Roland Greene (English, Comparative Literature), Hans U. Gumbrecht (French and Italian), Akhil Gupta (Cultural and Social Anthropology, on leave), David Halliburton (English), Matthew Kohrman (Cultural and Social Anthropology, on leave), Miyako Inoue (Cultural and Social Anthropology), Pamela Lee (Art and Art History), Timothy Lenoir (History, on leave), Andrea A. Lunsford (English), Purnima Mankekar (Cultural and Social Anthropology), Paula Moya (English), Sianne Ngai (English), David Palumbo-Liu (Comparative Literature), Peggy Phelan (Drama, on leave), Robert Polhemus (English), Arnold Rampersad (English), Jessica Riskin (History), Richard Rosa (Spanish and Portuguese), Ramón Saldívar (English, Comparative Literature), Debra Satz (Philosophy), Jeffrey Schnapp (French and Italian), Helen M. Stacy (Institute for International Studies), Elizabeth Traugott (Linguistics), Robert Weisberg (Law), Richard White (History), Bryan Wolf (Art and Art History), Sylvia Yanagisako (Cultural and Social Anthropology), Yvonne Yarbro-Bejarano (Spanish and Portuguese)

*Program Offices:* Building 250, Room 251F

*Mail Code:* 94305-2020

*Phone:* (650) 723-3413

*Email:* idstudies.moore@stanford.edu

*Web Site:* <http://www.stanford.edu/dept/MTL>

Courses given in Modern Thought and Literature have the subject code MTL. For a complete list of subject codes, see Appendix.

The Program in Modern Thought and Literature is administered through the office of Interdisciplinary Studies in Humanities. The program admits students for the Ph.D. and a very limited number for a coterminal B.A./M.A. Program.

## UNDERGRADUATE PROGRAMS

Although Modern Thought and Literature has no formal undergraduate degree granting program, undergraduate students who are interested in completing a major in this field may do so through the undergraduate major in Interdisciplinary Studies in Humanities (see that section of this bulletin). This undergraduate program is designed for students with a strong commitment to interdisciplinary study in the various humanities. Students may devise majors that incorporate modern literature (since the 18th century), cultural history, and critical theory. Students may also create majors in other interdisciplinary concentrations such as Film Studies. For specific course guidelines, see the undergraduate *Handbook for the Major in Interdisciplinary Studies in Humanities*. Students wishing to declare the major in Interdisciplinary Studies in Humanities must apply for admission to the Humanities Honors Program and for graduation with honors in Humanities.

## COTERMINAL BACHELOR'S AND MASTER'S PROGRAM

Each year, one or two undergraduate students, who are exceptionally well prepared in literature and at least one foreign language, and whose undergraduate course work includes a strong interdisciplinary component, may petition to be admitted to the program for the purpose of completing a coterminal M.A. degree. Admission to this program is granted only on condition that in the course of working on their master's degree they do not apply to enter the Ph.D. program in Modern Thought and Literature. The deadline for application is February 16.

To apply, applicants submit:

1. An unofficial grade transcript from AXESS.
2. A "Petition for Admission to the Coterminal Program" from Degree Progress in the Registrar's Office.
3. A statement giving the reasons the student wishes to pursue this program and its place in his or her future plans. This statement should pay particular attention to the reasons why the student could not pursue the studies he or she desires in some other way.
4. A plan of study listing, quarter by quarter, each course by name, units, and instructor, to be taken in order to fulfill the requirements for the degree for a total of 45 units, including at least 20 units of advanced work in one literature, and at least 20 units in a coherent interdisciplinary program of courses taken in non-literature departments.
5. A writing sample of critical or analytical prose.
6. Two letters of recommendation from members of the faculty who know the applicant well and who can speak directly to the question of his or her ability to do graduate-level work.

For University coterminal degree program rules and University application forms, see <http://registrar.stanford.edu/publications/#Coterm>.

## REQUIREMENTS

The candidate for the M.A. must complete at least 45 units of graduate work, to be divided in the following manner:

1. The introductory seminar, MTL 334A, 5 units
2. At least 20 units of advanced course work in literature, to be approved by the director.
3. At least 20 units of course work in a coherent and individually arranged interdisciplinary program, to be approved by the director.

By the end of the course of study, each candidate must also demonstrate a reading knowledge of at least one foreign language.

## GRADUATE PROGRAMS

The Ph.D. in Modern Thought and Literature is an interdisciplinary program combining work in modern literary/cultural studies with work in one or more other modern disciplines.

The Ph.D. program is designed specifically for students who have a strong interest in literature or culture, but whose approach or focus requires an interdisciplinary program; for example, students interested in anthropological or philosophical approaches to literature and culture; gender studies; ethnic studies; or in topics such as legal humanities, popular culture, and social or cultural theory.

Modern Thought and Literature is intended for students who plan to teach and write in literature departments or in interdisciplinary programs in the humanities, cultural studies, or humanistic social sciences, or for students intending to formulate cultural policy.

Course work in the program is divided about evenly between advanced courses in literature departments and advanced courses in non-literary departments.

## MASTER OF ARTS

The Master of Arts is available to students who are admitted to the doctoral program. Students are not admitted into the program for the purpose of earning a terminal Master of Arts degree. Candidates for the Ph.D. who satisfy the committee of their progress and satisfactorily complete 45 units of course work forming a coherent program of study, may apply for an M.A. in Modern Thought and Literature.

## DOCTOR OF PHILOSOPHY

University requirements for the Ph.D. are discussed in the “Graduate Degrees” section of this bulletin.

A candidate for the Ph.D. degree in Modern Thought and Literature must complete three years (nine quarters) of full-time work, or the equivalent, in graduate study beyond the B.A. degree. He or she is expected to complete at least 18 courses of graduate work in addition to the dissertation. Students may spend one year of graduate study abroad.

Requirements for the Ph.D. in Modern Thought and Literature are:

1. A two-quarter introductory seminar, MTL 334A,B, The Modern Tradition I and II (5 units each, Autumn, Winter) followed by MTL 300, The Modern Thought and Literature Colloquium (1 unit, Spring).
2. A coherent program of eight courses of advanced work in literary studies to be worked out with the adviser, of which at least six must be regularly scheduled courses in literature. Courses in the teaching of composition (ENGLISH 396, 397), ad hoc graduate seminars (MTL 395), research courses (MTL 398), and thesis registration (MTL 802) may not be counted among these six courses; MTL 396L, 397, 399, 802 may not be counted toward these requirements under any circumstances.
3. Eight courses of advanced work in non-literature departments, the core of which is completion of either a departmental minor or an interdepartmental concentration, typically consisting of six courses. Departmental minors are available from the departments of Cultural and Social Anthropology, Art and Art History, Communication, History, Philosophy, Political Science, Religious Studies, and Sociology (see the relevant information in those sections of this bulletin). Approved interdepartmental concentrations have been established in popular culture, ethnic studies, feminist and gender studies, and science and technology studies (specific course requirements are available from the program office). Individually designed concentrations may be approved by petition to the director. In addition to the required six courses in a minor or a concentration, two additional courses from non-literature departments are chosen in consultation with each student’s academic adviser. Course restrictions noted above in item 2 also apply.
4. *Qualifying Paper*: this certifies that students are likely to be able to undertake the quality of research, sustained argumentation, and cogent writing demanded in a doctoral dissertation. The qualifying paper must be a substantial revision of a seminar paper written at Stanford during the first year and should embody a substantial amount of independent research, develop an intellectual argument with significant elements of original thinking, and demonstrate the ability to do interdisciplinary work. Each paper is evaluated by two or three readers (designated before the end of the first year of graduate study), one of whom must be a member of the Committee in Charge. Qualifying papers must be submitted to the program office no later than the end of the third week of the fifth quarter of enrollment, normally, winter of the second year.
5. Teaching, an essential part of the program, is normally undertaken in conjunction with the Department of English. Candidates are required to demonstrate competence in teaching.
6. Students must demonstrate, by the end of the third quarter of the first year, a reading knowledge of one foreign language and, by the beginning of the first quarter of the third year, a reading knowledge of one other foreign language. Reading knowledge means the ability to make a genuine scholarly use of the language: that is, to read prose of ordinary difficulty.

Students may not take the University oral examination before completion of the foreign language requirement.

7. *Candidacy*: at the end of the second year, students apply for candidacy. The following qualifications are required before candidacy can be certified: the earlier submission of a satisfactory qualifying paper, demonstration of a reading knowledge of one foreign language; satisfactory progress in course work; a list of courses applicable to the degree, distinguishing between courses appropriate to the liter-

ary component and courses appropriate to the interdisciplinary component; designation of a departmental minor or an interdisciplinary concentration; and the submission of a statement outlining the scope and coherence of the interdisciplinary component of the program in relation to the literary component and noting the relevance of the course work to that program.

8. *Annual Review*: the program and progress of each student must be approved by the Committee in Charge at the end of each academic year.
9. *University Oral Examination*: this examination, covering the student’s areas of concentration, normally is taken in the third year of graduate study. It is a two-hour oral examination administered by four faculty members specializing in the student’s areas of concentration, and a chair from another department. The exam is based on a substantial reading list prepared by the student in conjunction with the faculty committee and designed to cover the areas of expertise pertinent to the student’s dissertation project.
10. *Colloquium on the Dissertation Proposal*: sometime after the University oral examination, or in conjunction with that examination, the dissertation committee assembles for up to one hour to discuss the dissertation proposal with the student. Prior to this meeting, the student should have consulted each member of the committee to discuss the proposal and compile a bibliography.
11. *Dissertation*: the fourth and fifth years are devoted to the dissertation, which should be a substantial and original contribution acceptable to the Committee on Modern Thought and Literature. The subject is drawn from the literature of specialization and the area of nonliterary studies.

## HUMANITIES

The program participates in the Graduate Program in Humanities leading to a joint Ph.D. degree in Modern Thought and Literature and Humanities. For a description of the Humanities program, see the “Interdisciplinary Studies in Humanities” section of this bulletin.

## COURSES

Students interested in literature and literary studies should also consult course listings in the departments of Asian Languages, Classics, Comparative Literature, English, French and Italian, German Studies, Slavic Languages and Literatures, and Spanish and Portuguese, and in the Division of Literatures, Cultures, and Languages. For other offerings, students should consult listings in the individual departments of interest. Consent of instructor is often required.

Students in the doctoral program in Modern Thought and Literature are advised to read through the offerings in English as well as offerings of the non-literature departments in which they wish to concentrate: for example, courses dealing with culture listed under Cultural and Social Anthropology, courses dealing with film under Communication or Art and Art History, courses in intellectual and cultural history under History. If the area of nonliterary interest is thematic rather than disciplinary, doctoral students should look under program listings such as Feminist Studies, African and African American Studies, or Comparative Studies in Race and Ethnicity.

**MTL 175. Individual Work**—For undergraduates only.  
2-5 units, Aut, Win, Spr, Sum (Staff)

**MTL 280. Interdisciplinary Pedagogy: Race and Social Justice**—This workshop is a collective of graduate students from different disciplines interested in pedagogy for social justice. The collective interviews faculty, designs syllabi and teaching portfolios, serves as a support group for members currently teaching, and critiques course assignments, readings, and discussion formats. Focus this year is on performance and pedagogy: pedagogy as performative; and performances used and viewed as text within the classroom. Guest artists and educators.

1-5 units, Aut, Win, Spr (Zamora)

**MTL 300. Modern Thought and Literature Colloquium**—Required of first-year graduate students in the program; open to all students in the program and to others by consent of instructor. Weekly meeting of students in the program to discuss interdisciplinary scholarship, writing, and issues pertaining to the requirements for the Ph.D. Presentations by affiliated faculty and by student panels.

*1-3 units, Spr (Palumbo-Liu)*

**MTL 334A. The Modern Tradition I**—(Same as COMPLIT 334A.) Preference to first-year graduate students in Modern Thought and Literature and Comparative Literature. Basic texts that have formed the foundation for contemporary cultural and social theory including Marx, Weber, Freud, Durkheim, and Boas.

*5 units, Aut (Palumbo-Liu)*

**MTL 334B. The Modern Tradition II**—(Same as CASA 334B.) Responses, refutations, elaborations, modifications to basic texts in critical theory such as Gramsci, Lacan, Derrida, and postcolonial, post-modern, and feminist theory. Prerequisite: 334A.

*3-5 units, Win (Mankekar)*

**MTL 390. Qualifying Paper**—Preparation and writing of the qualifying paper for the Ph.D. in Modern Thought and Literature.

*1-5 units, Aut, Win, Spr, Sum (Staff)*

**MTL 395. Ad Hoc Graduate Seminar**—Graduate students (three or more) who wish to study a subject or an area not covered by regular courses and seminars may plan an informal seminar and approach a suitable member of the faculty to supervise it.

*1-5 units, Aut, Win, Spr, Sum (Staff)*

**MTL 396L. Pedagogy Seminar I**—(Enroll in ENGLISH 396L, COMPLIT 396L.)

*2 units, Aut (Lerer)*

**MTL 397. Teaching Praxis**—For Modern Thought and Literature doctoral students only. Teaching experience. Consent of program director required.

*1-5 units, Aut, Win, Spr, Sum (Staff)*

**MTL 398. Research**—Students pursue a special subject of investigation under supervision of a member of the committee or another faculty member. Thesis work is not to be registered under this number.

*1-15 units, Aut, Win, Spr, Sum (Staff)*

**MTL 399. Reading for Orals**—Reading in preparation for the University Oral Examination.

*1-15 units, Aut, Win, Spr, Sum (Staff)*

**MTL 400. Symposium**—Preparation for and participation in the annual student symposium.

*1-5 units, Win, Spr (Palumbo-Liu)*

## MUSIC

*Emeriti: (Professors)* John M. Chowning, Albert Cohen, George Houle, William H. Ramsey, Leonard G. Ratner, Sandor Salgo, Leland C. Smith; *(Professors, Performance)* Arthur P. Barnes, Marie Gibson, Andor Toth

*Chair:* Jonathan Berger

*Professors:* Karol Berger, Chris Chafe, Brian Ferneyhough, Stephen Hinton (on leave)

*Associate Professors:* Jonathan Berger, Thomas Grey (on leave Autumn), William P. Mahrt (on leave Winter, Spring), Julius O. Smith

*Assistant Professors:* Mark Applebaum, Heather Hadlock, Melissa Hui (on leave), Tobias Plebuch

*Professor (Research):* Max V. Mathews

*Associate Professor (Performance):* Jindong Cai (Director of Orchestral Studies)

*Associate Professors (Teaching):* George Barth (Piano), Stephen Sano (Director of Choral Studies)

*Senior Lecturers:* Stephen Harrison (Violoncello), Gennady Kleyman (Violin, Viola), Jennifer Lane (Voice), Thomas Schultz (Piano), Gregory A. Wait (Voice), Frederick R. Weldy (Piano)

*Lecturers:* Giancarlo Aquilanti (Theory, Wind Ensemble), Carey Bell (Clarinet), Talya Berger (Theory), Fredrick Berry (Jazz Ensemble), Frances Blaisdell (Flute), Mark Brandenburg (Clarinet), Marjorie Chauvel (Harp), Robert Claire (Baroque Flute), Tony Clements (Tuba), Laura Dahl (Resident Collaborative Pianist), John Dornenburg (Viola da Gamba), Charles A. Ferguson (Guitar), Claire Giovannetti (Voice), Charles Gustavson (Jazz Piano), Dawn Harms (Violin), Alexandra Hawley (Flute), Alex Hills (Theory, Composition), Melody Holmes-Schaeffle (Flute), Robert Hubbard (Oboe), Joyce Johnson-Hamilton (Trumpet), Chris Jones (Theory, Composition), Jay Kadis (Audio Recording), McDowell Kenley (Trombone), Mary Linduska (Voice), Fernando Lopez-Lezcano (CCRMA), Janet Maestre (Flute), Anthony Martin (Baroque Violin), James Matheson (Oboe), Robert Huw Morgan (Organ), Bruce Moyer (Contrabass), Herbert Myers (Early Winds), James Nadel (Jazz), Rufus Olivier (Bassoon), Larry S. Ragent (French Horn), Malcolm Slaney (CCRMA), Harold Stein (Saxophone), Elaine Thornburgh (Harpsichord), Erik Ulman (Theory, Composition), Linda Uyechi (Taiko), Mark Verege (Percussion), William L. Verplank (Human Computer Interface Design), Timothy Zerlang (Piano)

*Consulting Professors:* Marina Bosi (CCRMA), Walter Hewlett (Computer-Assisted Research in the Humanities), Eleanor Selfridge-Field (Computer-Assisted Research in the Humanities)

*Acting Assistant Professor:* Adam Gilbert (Music History)

*Acting Instructor:* Robert Lucero (Mariachi)

*Artists-in-Residence* (St. Lawrence String Quartet): Geoff Nuttall (Violin 1), Barry Shiffman (Violin 2), Lesley Robertson (Viola), Christopher Costanza (Cello)

*Mellon Fellow:* Phil Ford (Music History)

*Department Offices:* Braun Music Center, Room 101

*Mail Code:* 94305-3076

*Phone:* (650) 723-3811

*Email:* rcornejo@stanford.edu

*Web Site:* <http://music.stanford.edu/>

Courses given in Music have the subject code MUSIC. For a complete list of subject codes, see Appendix.

The Department of Music's aims are to provide specialized training for those who plan careers in music as composers, performers, teachers, and research scholars; and to promote the understanding and enjoyment of music in the University at large through its courses and abundant performance offerings.

Varied opportunities for instrumental and vocal study and performance are available to majors and nonmajors alike. Students wishing to obtain individual instruction, to participate in chamber music, or to play



in department ensembles should note that auditions are held during registration week in Autumn Quarter. While there may be openings in some private studios for qualified students during other quarters, it is to the student's advantage to audition in autumn, as most slots are filled for the entire year.

The department is housed in Braun Music Center, Dinkelspiel Auditorium, and The Knoll, including two theaters for concert and recital productions, two rehearsal halls, and a small chamber hall. Pianos, organs, harpsichords, and a variety of early stringed and wind instruments are available for student use. In addition, advanced students may use fine old stringed instruments and bows from the Harry R. Lange Historical Collection (<http://music.stanford.edu/DeptInfo/Langecol.html>).

The Music Library contains a comprehensive collection of scores, books, and recordings with an emphasis on Western art music. In addition, the Department of Special Collections holds an invaluable collection of musical manuscripts and first and early editions, and the Archive of Recorded Sound has a superb collection of historical recordings of all types.

For more information on the Department of Music, see the Music Department home page at <http://music.stanford.edu/>.

The Stanford Center for Computer Research in Music and Acoustics (CCRMA) is a multi-disciplinary facility where composers and researchers work together using computer-based technology both as an artistic medium and as a research tool. Areas of ongoing interest at CCRMA include: composition, applications hardware, applications software, synthesis techniques and algorithms, physical modeling, real-time controllers, signal processing, digital recording and editing, psychoacoustics and musical acoustics, music manuscripting by computer, and real-time applications.

The CCRMA community consists of administrative and technical staff, faculty, research associates, graduate research assistants, graduate and undergraduate students, visiting scholars, visiting researchers and composers, and industrial associates. Center activities include academic courses, seminars, small interest-group meetings, summer workshops, and colloquia. Concerts of computer music are presented several times each year with an annual outdoor computer-music festival in July.

CCRMA houses studios, computing facilities, and a networked system of software that includes programs and tools for editing, viewing, synthesizing, and analyzing sound. For a detailed and up-to-date description of facilities available, see the CCRMA home page at <http://ccrma.stanford.edu/>.

The Center for Computer-Assisted Research in the Humanities (CCARH), located in Braun Music Center, conducts research focused on constructing computer databases for music and on creating programs that allow student and staff researchers to access, analyze, print, and electronically perform the music. For more information, see the CCARH home page at <http://www.ccarh.org/>.

## UNDERGRADUATE PROGRAMS BACHELOR OF ARTS

The undergraduate major in Music is built around a series of foundation courses in theory, musicianship, and music history, in addition to performance and the proficiency requirements outlined below. Because of the sequence of courses, it takes more than two years to complete the requirements for the major. Prospective majors are urged to consult the undergraduate student services officer in the department as early as possible in order to plan a program that allows sufficient time for major course work, practice, and University requirements outside the major. Early planning is especially important for students wishing to double-major, for those contemplating overseas study during their undergraduate years, for those wishing to do an in-depth concentration in the music major, and for those with particular musical talents and interests. All required courses for the B.A. in Music and in the Music, Science, and Technology specialization must be taken for a letter grade. Electives may be taken credit/no credit, but any courses taken towards concentration requirements must also carry a letter grade.

- Students are required to include the following foundation courses in their programs:
  - Theory: MUSIC 21, 22, 23
  - History: MUSIC 40, 41, 42, and three from the series 140-148 Writing in the Major (WIM) courses (two of which must be taken as 4-unit WIM courses)
  - Analysis: MUSIC 121 and two from 122A, B, or C
- Additionally, Music majors must fulfill the following two performance requirements:
  - Instruction in instrumental and/or vocal performance: minimum of five quarters, comprising a minimum of 15 units.
  - Ensemble: five quarters (5 units minimum) of work in one or more of the department's organizations or chamber groups. MUSIC 156, "sic": Improvisation Collective, and MUSIC 157, Mariachi Band, do not satisfy this requirement. MUSIC 181 may count for up to two of the ensemble-unit requirements for the music major. To fulfill the ensemble requirement, music majors need to participate at least three quarters in the department's traditional large ensembles (MUSIC 159-167), with the exception of students whose primary instrument is harp, keyboard, or guitar, who need to participate at least one quarter in the ensembles above, but who may fulfill the rest of the requirement with chamber music (171).
- Majors are required to pass a Piano Proficiency examination as a part of the requirements to complete MUSIC 23. Offered separately from the course at the end of the Autumn and Spring quarters or at other times by appointment, it consists of scales and arpeggios, performance of a simple tune (to be set by the examiner), sight reading, and the performance of prepared pieces (consult the department undergraduate adviser for details). Remedial skills are taught in MUSIC 12A,B,C.
- Majors must also pass an Ear-Training Proficiency examination, which is part of the requirements to complete MUSIC 23. It may be taken by arrangement, demonstrating a student's ability to hear music accurately and to perform it at sight.

### RECOMMENDED SCHEDULE FOR THE MUSIC MAJOR

The following sample schedule shows how a student may include substantial work on a major in music while also fulfilling the University General Education Requirements during the freshman and sophomore years. The schedule also includes foreign language study, which is strongly recommended for all music majors and especially for those expecting to continue into graduate work in any area of music.

#### FIRST YEAR

<i>Course No. and Subject</i>	<i>Quarter and Units</i>		
	A	W	S
PWR as assigned	3		3
MUSIC 19 (if needed), 21, 22	(3)	4	4
Individual Instruction and/or Ensemble	1-4	1-4	1-4
Introduction to the Humanities	3-5	3-5	3-5
Choice of Foreign Language, General Education Requirement, or Stanford Introductory Seminar	3-5	3-5	3-5

#### SECOND YEAR

MUSIC 23, 40, 41, 42	8	4	4
Individual Instruction and/or Ensemble	1-4	1-4	1-4
General Education Requirement, or Stanford Introductory Seminar	3-5	3-5	3-5
Elective	(3)	(3)	(3)

#### THIRD AND FOURTH YEARS

MUSIC 121 and two from 122A, B, or C	4	4	4
Three from MUSIC 140-148	4-8	4-8	4-8
Elective	(4)	(4)	(4)
Senior Year: Concentration Project (if selected)	(4)		

### MUSIC, SCIENCE, AND TECHNOLOGY

The specialization in Music, Science, and Technology is designed for those students with a strong interest in the musical ramifications of rapidly evolving computer technology and digital audio, and in the acoustic and psychoacoustic foundations of music. The program entails a re-

search project under faculty guidance and makes use of the highly multidisciplinary environment at CCRMA. This program can serve as a complementary major to students in the sciences and engineering.

1. Students in the program are required to include the following courses in their studies:
  - a) Theory: 21, 22, 23, 121, 151 (WIM) (4 units each); 150 (3 units); 220A,B,C (4 units each); 250A (4 units)
  - b) History: two from 40, 41, 42
  - c) Applied: individual studies in performance (6 units) or 192A,B; and Ensemble or 192C (5 units)
  - d) Research project: 220D (4 units)
2. Students in Music, Science, and Technology must also pass the Piano and Ear-Training Proficiency examinations required of all Music majors.

### MINORS

Minors in Music and in the Music, Science, and Technology specialization provide the student with a core of essential Music courses in the disciplines that establish both a foundation for informed appreciation of music and a basis for more advanced study, should the student wish to pursue it.

### MUSIC

<i>Course No. and Subject</i>	<i>Units</i>
MUSIC 21, 22, 23. Elements of Music	12
MUSIC 40, 41, 42. Music-History Survey	12
Choice of one (WIM):	
MUSIC 140-148. Studies in Music History	4
Two quarters:	
MUSIC 159-171. Ensemble	2
MUSIC 172-177. Individual Instruction	6
Academic Elective in Music	4
Total .....	40

### MUSIC, SCIENCE, AND TECHNOLOGY

MUSIC 21, 22, 23. Elements of Music	12
MUSIC 150. Musical Acoustics	3
MUSIC 151. Psychophysics and Cognitive Psychology for Musicians (WIM)	4
MUSIC 220A,B. Fundamentals of Computer-Generated Sound	8
MUSIC 192A,B. Theory and Practice of Audio Recording	6
MUSIC 192C. Session Recording (two quarters, 1 or 2 units/qr.)	3
Academic Elective in Computer Music	4
Total .....	40

### CONCENTRATIONS

Concentrations are offered in performance, conducting, composition, or history and theory. In each concentration, 6 additional course units in the area of concentration beyond the basic requirements for the major are required. In addition, each concentrator registers for an independent project (198, 4 units) in the senior year under faculty supervision, leading to a senior recital, a composition, a conducting project, or a senior research paper. Students wishing to pursue the concentration in performance must demonstrate private-lesson-level proficiency on their instrument. Specific guidelines and information on the concentration tracks are available from the Department of Music office.

### HONORS PROGRAM

Honors in Music is awarded by the faculty to concentrators who have produced an independent project of exceptional quality and meet certain department standards in musicianship, scholarship, and academic standing. The conferral of honors is done solely through faculty consultation. Students do not petition for honors.

### OVERSEAS STUDIES

Courses in Music are often available at Stanford overseas programs, especially in Berlin, Paris, and Oxford. See the Overseas Studies Program section of this bulletin immediately following this section for this year's listings. Music majors and minors should talk to the Department of Music undergraduate administrator prior to going overseas.

## GRADUATE PROGRAMS

University requirements for the M.A., D.M.A., and Ph.D. degrees are described in the "Graduate Degrees" section of this bulletin.

The following statements apply to all the graduate degrees described below, unless otherwise indicated.

**Admission**—Applicants are required to submit evidence of accomplishment (scores, recordings, and/or research papers, according to the proposed field of concentration) when they return the application form. Applicants should arrange to take the Graduate Record Examination (GRE) well in advance of the December 14 application deadline. All applicants, except those applying for the M.A. in Music, Science, and Technology (M.A./MST), are also required to submit a departmental entrance test in theory and musicianship, which is available from the Music Department. All components of the application are due by December 14. International students whose first language is not English are required to take the TOEFL exam (with certain exceptions: see the University Registrar's web site at <http://registrar.stanford.edu/>).

**Department Examinations**—All entering graduate students except those in the M.A./MST program are required to take: (1) a diagnostic examination testing the student in theory (counterpoint, harmony, and analysis) and (for musicologists only) the history of Western art music, and (2) a proficiency examination in sight-singing and piano sight-reading. These exams are given at the beginning of study in the department (usually the week before school begins).

None of Stanford's required undergraduate courses may be credited toward an advanced degree unless specifically required for both degrees. Only work that receives a grade of 'A,' 'B,' or 'Satisfactory' (a passing grade in an instructor-mandated credit/no credit course) in music courses taken as a graduate student is recognized as fulfilling the advanced-degree requirements. Students may need to devote more than the minimum time in residence if preparation for graduate study is inadequate.

### MASTER OF ARTS

**Residence**—A minimum of 45 academic units is required for the master's degree in Music.

### MUSIC

Students in the doctoral programs who enter directly from the bachelor's level may, upon completing 45 units and advancing to candidacy, be recommended for the M.A. degree. The Department of Music does not accept students for study only towards the M.A. degree except in the Music, Science, and Technology program, described below.

### MUSIC, SCIENCE, AND TECHNOLOGY

This is a one-year program of 45 units focusing on the integration of music perception, music-related signal processing and controllers, and synthesis. The program is designed for students having an undergraduate engineering or science degree, or a degree that includes course work in engineering mathematics.

Required are:

MUSIC 151. Psychophysics and Cognitive Psychology for Musicians	4
MUSIC 154. Composition and Performance of Instrumental Music with Electronics	3
MUSIC 192A. Foundations of Sound-Recording Technology	3
MUSIC 192B. Advanced Sound-Recording Technology	3
MUSIC 220A. Fundamentals of Computer-Generated Sound	4
MUSIC 220B. Compositional Algorithms, Psychoacoustics, and Spatial Processing	4
MUSIC 220C. Research Seminar in Computer-Generated Music	4
MUSIC 250A. HCI Theory and Practice	4
MUSIC 320. Introduction to Digital Audio Signal Processing	4
MUSIC 420. Signal Processing Models in Musical Acoustics	2
MUSIC 421. Audio Applications of the Fast Fourier Transform	2
Elective	8
Total .....	45

## DOCTORAL PROGRAMS

**Residence**—The candidate must complete a minimum of 135 academic units (see Residency under the “Graduate Degrees” section of this bulletin). Doctoral candidates working on Ph.D. dissertations or Doctor of Musical Arts (D.M.A.) final projects that require consultation with faculty members continue enrollment in the University under Terminal Graduate Registration (TGR), after they have reached the required 135 academic units and have completed their Special Area examinations.

**Foreign Language Requirement**—At the time of advancement to candidacy, all D.M.A. students, and Ph.D. students in the Computer-Based Theory and Acoustics program, are required to have demonstrated a reading knowledge of one language other than English and the ability to translate into idiomatic English. Ph.D. students in Musicology are required to demonstrate proficiency in German and a similar competence in a second language, chosen from French, Italian, or Latin (or, on a case-by-case basis, another language, if it has significant bearing on the candidate’s field of study).

**Qualifying Examination**—A written and oral examination for admission to candidacy is given just prior to the fourth quarter of residence for D.M.A. students, and Ph.D. students in the Computer-Based Music Theory and Acoustics programs; for Ph.D. students in Musicology, the exams are given just prior to the eighth quarter of residence. This exam tests knowledge of history, theory, repertory, and analysis.

**Teaching**—All students in the Ph.D. or D.M.A. degree programs, regardless of sources of financial support, are required to complete six quarters of their supervised teaching at half time. Music 280 (given in Spring Quarter) is a required course for Teaching Assistants. Additional quarters of teaching may be required.

**Basic Requirements**—Doctoral programs in the Department of Music do not require a master’s degree as a prerequisite. All students entering directly from the bachelor’s degree level are required to take the following course (which is, however, required of *all* students in musicology, regardless of entering degree level):

<i>Course No. and Subject</i>	<i>Units</i>
200. Graduate Proseminar	4

All doctoral candidates must take:

301A,B,C. Music Analysis: Modal, Tonal, and Post-Tonal	12
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## DOCTOR OF MUSICAL ARTS IN COMPOSITION

The Doctor of Musical Arts (D.M.A.) degree in Composition is given breadth through collateral studies in other branches of music and in relevant studies outside music as seems desirable.

**Examinations**—A written Special Area examination in the candidate’s field of concentration, including a final project proposal, is required to be completed during the fourth year of study, no later than the last day of classes in Spring quarter of that year and preferably prior to the start of Winter quarter. A public lecture-demonstration is also required during the last quarter of residence. It should be one hour in length, treating aspects of the final project.

**Requirements**—Besides those requirements listed above, candidates are expected to produce a number of works demonstrating their ability to compose in a variety of forms and for the common media: vocal, instrumental, and electronic music. If possible, the works submitted are presented in public performance prepared by the composer. Annual progress is reviewed by the composition faculty. The final project in composition is an extended work for instruments, voices, electronic media, or a combination of these. MUSIC 323, Doctoral Seminar in Composition (16 units), is a required course.

## DOCTOR OF PHILOSOPHY

The Ph.D. in Music can be pursued in two concentrations: Musicology or Computer-Based Music Theory and Acoustics.

**Examinations**—

1. *Special Areas*: a written and oral examination testing the student’s knowledge of music and research in the student’s field of concentration is completed during the fourth year of study, no later than the last

day of classes in Spring Quarter of that year and preferably prior to the start of Winter Quarter. This includes an oral defense of the dissertation proposal. The examining committee comprises prospective readers of the dissertation.

2. *Ph.D. Orals*: the University oral examination, taken once the dissertation is substantially underway, is an oral presentation and defense of dissertation research methods and results.

**Requirements**—Besides those requirements listed above, other requirements by concentration are:

### MUSICOLOGY

<i>Course No. and Subject</i>	<i>Units</i>
221A. History of Music Theory: Ancient Through Baroque	4
221B. History of Music Theory: Classical Through Modern	4
269A. Seminar in Performance Practices	4
300A,B. Seminar in Notation	8
310. Research Seminars in Musicology*	24-40
312A,B. Aesthetics and Criticism of Music	8

\* The requirement is for eight seminars of 3-5 units each. Students may petition to take up to two graduate seminars in other departments, in consultation with their adviser.

### COMPUTER-BASED MUSIC THEORY AND ACOUSTICS

220A,B,C. Computer-Generated Music Seminars	12
220D. Research in Computer Music	12
221A. History of Music Theory: Ancient Through Baroque	4
221B. History of Music Theory: Classical Through Modern	4
320. Introduction to Digital Audio Signal Processing	4

### JOINT PH.D. IN MUSIC AND HUMANITIES

The department participates in the Graduate Program in Humanities leading to a joint Ph.D. degree in Music and Humanities. For a description of the program, see the “Interdisciplinary Studies in Humanities” section of this bulletin.

## COURSES

WIM indicates that the course satisfies the Writing in the Major requirements. (AU) indicates that the course is subject to the University Activity Unit limitations (8 units maximum).

Many Department of Music courses have pages on the web which are linked to the Music home page. Courses with web sites at press time are noted in their entries below.

## GENERAL

**MUSIC 2C. Men, Women, and Opera**—Opera through the lenses of gender and sexuality. Topics include: Italian Romantic opera archetypes of the doomed soprano, seductive tenor, and repressive bass; queer and feminist appropriations of opera’s misogynist and heterosexist content; ambiguous representations of gender in Baroque opera in which high-voiced castrati and women played male heroes; female wit and sincerity versus male lust, aggression, and social power in comic opera. GER:3a,4c  
3 units, Win (Hadlock)

**MUSIC 3B. A Revolution in Sensibility: American Popular Music, 1965-1975**—Rock, funk, film music, and jazz. How a countercultural sensibility formerly confined to small, elite enclaves revolutionized mainstream American style, tastes, and manners. How the sensibility of the 60s was bound up with music to resonate in the present. How music, literature, visual art, theater, and film play reciprocal roles in defining countercultural sensibility. GER:3a  
3 units, Spr (P. Ford)

**MUSIC 8A. Rock, Sex, and Rebellion**—Development of critical listening skills and an understanding of musical parameters through an introduction to select genres within the history of rock music. Focus is on competing aesthetic tendencies and subcultural forces that shaped the music. Rock’s significance in American culture, and the minority communities that have enriched rock’s legacy as an expressively diverse form. Lectures, readings, careful listening, and video screenings. GER:3a,4b

3 units, Spr (Applebaum)

**MUSIC 9A. Tchaikovsky, Stravinsky, Shostakovich, and Beyond: A History of Russian Music**—Introduction to Russian culture through classical music and folklore, including sacred, secular, oral, and written music. The variety of Russian sung folklore in its traditional context, and how it is reflected in the music of Russian composers including Glinka, Mussorgsky, Rimsky-Korsakov, Tchaikovsky, Skryabin, Stravinsky, Prokofiev, and Shostakovich. Listening assignments include fieldwork data and video recordings.

3 units, Spr (*Zemtsovsky*)

**MUSIC 11N-32N. Stanford Introductory Seminars**

**MUSIC 11Q. The Allure of Chamber Music**—Stanford Introductory Seminar. Preference to sophomores. Why is it that an intimate setting for a small group of independent instruments has engendered some of the most expressive works in the history of music? Class attends chamber music concerts, seeking to comprehend the setting in projecting that meaning. Preparation for each concert includes reading, listening, and discussion of the music to be performed; performer interviews when possible. Written reports on the concerts attended. GER:3a

3 units, Win (*Cohen*)

**MUSIC 14N. Women Making Music**—Stanford Introductory Seminar. Preference to freshmen. Women's roles as composers and performers across history and cultures. Music from diverse cultures, styles, and eras as a medium for women to express individuality and build community. Women's musical activities in folk and art music of Japan, India, Ireland, and Albania; women in popular music in America, Egypt, and Africa; female musicians of the medieval, Renaissance, Romantic, and contemporary eras. GER:3a,4c

3 units, Aut (*Hadlock*)

**MUSIC 16N. Music, Myth, and Modernity: Wagner's Ring Cycle and Tolkien's Lord of the Rings**—Stanford Introductory Seminar. Preference to freshmen. Roots of Wagner's operatic cycle and Tolkien's epic trilogy in a common core of Norse, Germanic, and Anglo-Saxon mythology. The role of musical motive and characterization in Wagner's music dramas and the film version of Tolkien's trilogy. Music as a key element in the psychological, political, and cultural revision of ancient myth in modern opera and film. GER:3a,4a

3 units, Spr (*Grey*)

**MUSIC 16Q. Ki ho'alu: The New Renaissance of a Hawaiian Musical Tradition**—Stanford Introductory Seminar. Preference to sophomores. Developed in the Hawaiian Islands during the 1830s, *ki ho'alu*, or Hawaiian slack key guitar, is an art form experiencing newfound popularity in Hawai'i and worldwide. Its rise in popularity coincides with the growth of political activism in Hawaiian culture. The musical, cultural, historical, and political perspectives of Hawaiian music in general, and *ki ho'alu* in particular, through hands-on experience, readings, discussion, and workshops. Hawaiian music and history and the relationship among performance, cultural expression, community, and identity. GER:3a,4b

3 units, Aut (*Sano*)

**MUSIC 17N. The Operas of Mozart**—Stanford Introductory Seminar. Preference to freshmen. Four of Mozart's mature operas have held the stage uninterrupted since their premieres, the earliest works in the operatic repertoire never to go out of fashion. What accounts for this extraordinary staying power? Focus on the history of their composition, performance, and reception, and their changing significance from Mozart's time to the present. GER:3a

3 units, Win (*K. Berger*)

**MUSIC 17Q. Perspectives in North American Taiko**—Stanford Introductory Seminar. Preference to sophomores. Taiko, or Japanese drum, is a newcomer to the American music scene. Emergence of the first N. American taiko groups coincided with increased Japanese American activism, and to some it is symbolic of Japanese American identity. N. American taiko is associated with Japanese American Buddhism. Musical, cultural, historical, and political perspectives of taiko. Hands-on drumming. Japanese music and Japanese American

history, and relations among performance, cultural expression, community, and identity. GER:3a,4b

4 units, Spr (*Sano, Uyechi*)

**MUSIC 33N. Silence! The Music of John Cage**—Stanford Introductory Seminar. Preference to freshmen. Music and philosophy of American composer John Cage. Seminar and a workshop environment with opportunities to experiment with piano preparations, compose chance pieces of literature, music, video, and visual art, and perform Cage's music. Students collaboratively prepare short musical works in the spirit of Cage and perform them with the Merce Cunningham Dance Company. Prerequisite: willingness to perform in an experimental idiom. GER:3a,4b

4 units, Win (*Applebaum*)

**MUSIC 34N. Music in Film**—Stanford Introductory Seminar. Preference to freshmen. Film music from the silent days of cinema to the present. Films include *Birth of a Nation*, *Sunset Boulevard*, *A Clockwork Orange*, *Amadeus*, and *Moulin Rouge*. Goal is to enhance students' experience and judgment of films through understanding the interaction of music, sound, images, dialogue and narrative. Recommended: basic knowledge of music. GER:3a

4 units, Spr (*Plebuch*)

**MUSIC 35N. A Good Dissonance Like a Man: The Music and Ideas of Charles Ives**—Stanford Introductory Seminar. Preference to freshmen. The life and work of Charles Ives, and the polarized reception his compositions received. Music includes Ives' Victorian songs and his symphonic works; his philosophical and political writings, historic recordings, oral and photographic histories, and live performances. Hands-on work with original manuscripts and editions. Recommended: ability to read music. GER:3a,4b

4 units, Spr (*Barth*)

**MUSIC 18A. Jazz History: Ragtime to Bebop, 1900-1940**—From the beginning of jazz to the war years. GER:3a

3 units, Win (*Berry*)

**MUSIC 18B. Jazz History: Bebop to Present, 1940-Present**—Modern jazz styles from Bebop to the current scene. Emphasis is on the significant artists of each style. GER:3a

3 units, Spr (*Berry*)

**MUSIC 20A. Jazz Theory**—Introduces the language and sounds of jazz through listening, analysis, and compositional exercises. Students apply the fundamentals of music theory to the study of jazz. Prerequisite: 19 or consent of instructor. GER:3a

3 units, Aut (*Nadel*)

**MUSIC 20B. Advanced Jazz Theory**—Approaches to improvisation through listening and transcribing, and developing familiarity with important contributors to this music. Topics: scale theory, altered dominants, and substitute harmony. Prerequisite: 20A or consent of instructor. GER:3a

3 units, Win (*Nadel*)

**MUSIC 20C. Jazz Arranging and Composition**—Jazz arranging and composition for small ensembles. Foundation for writing for big band. Prerequisite: 20A or consent of instructor.

3 units (*Nadel*) not given 2004-05

**MUSIC 127. Instrumentation and Orchestration**—Study of individual instruments, instrumental groups within the orchestra, and combinations of groups. Arrangements from piano music to orchestral music. Score analysis with respect to orchestration. Practical exercises using chamber ensembles and school orchestra. Prerequisite: 23. GER:3a

3 units, Win (*Aquilanti*)

**MUSIC 159X. Religion and the Arts in India**—(Enroll in RELIGST 159/259A.)

4-5 units, Aut (*Hess*)

**MUSIC 187. The Work of Art and the Creation of Mind**—(Enroll in EDUC 200.)

4 units, Win (*Staff*)

## FOUNDATION FOR B.A. MAJOR

Students with previous training in theory should take a placement exam given at the beginning of each quarter for admission to more advanced courses. Students must not assume that they may begin study in MUSIC 21.

**MUSIC 19. Introduction to Music Theory**—For non-music majors and music majors or minors unable to pass the proficiency test for entry to 21. The fundamentals of music theory and notation, basic sight reading, sight singing, ear training, keyboard harmony; melodic, rhythmic, and harmonic dictation. Skill oriented, using piano and voice as basic tools to develop listening and reading skills. GER:3a

3 units, Aut, Spr (T. Berger)

**MUSIC 21,22,23. Elements of Music**—Melody, harmony, counterpoint, and rhythm are studied through analysis, composition, and exercises in practical musicianship. Emphasis is on tonal theory with components in melody, counterpoint, and harmony. Analytical and practical musicianship skills are taught, with analysis and compositional projects in historical styles. Students with previous training in theory should take a placement exam given at the beginning of each quarter for admission to more advanced courses. Students must not assume that they may begin study in MUSIC 21.

**MUSIC 21. Elements of Music I**—Preference to majors. Introduction to tonal theory. Practice and analysis. Diatonic harmony focusing on melodic and harmonic organization, functional relationships, voice-leading, and tonal structures. Ear-training and keyboard-harmony skills; analytical methods and listening strategies. Students intending to continue with 22-23 who do not have piano proficiency should begin 12 (class piano) concurrently. Enrollment limited to 40. Prerequisite: pass proficiency examination in basic musical skills on first day of class; students who do not pass may take 19. GER:3a

4 units, Aut (Aquilanti), Win (Jones)

**MUSIC 22. Elements of Music II**—Preference to majors. Introduction to chromatic harmony focusing on secondary functions, modulations, harmonic sequences, mode mixture, and the Neapolitan, and augmented sixth chords. Analysis of musical forms and harmonizations is complemented by harmonic and melodic dictation, sight singing, and other practical skills. Prerequisite: 21 or consent of instructor. GER:3a

4 units, Win (Aquilanti), Spr (Ulman)

**MUSIC 23. Elements of Music III**—Preference to majors. Continuation of chromatic harmony, complex forms, and introduction to early 20th-century techniques. Satisfactory passage of ear-training proficiency exam, part of the course's final, is a requirement for course completion and for continuation in the major sequence. Passage of departmental piano-proficiency exam is also required to pass this course. Prerequisite: 22 or consent of instructor. GER:3a

4 units, Aut (A. Hills), Spr (Aquilanti)

**MUSIC 40,41,42. Music History**—The history of Western art music from Gregorian chant to the present, stressing major styles and genres in their intellectual and institutional settings.

**MUSIC 40. Music History to 1600**—Pre- or corequisite: 23. GER:3a  
4 units, Aut (Gilbert)

**MUSIC 41. Music History 1600-1830**—Pre- or corequisite: 23. GER:3a  
4 units, Win (Plebuch)

**MUSIC 42. Music History Since 1830**—Pre- or corequisite: 23. GER:3a  
4 units, Spr (Grey)

**MUSIC 121. Analysis of Tonal Music**—Complete movements, or entire shorter works of the 18th and 19th centuries, are analyzed in a variety of theoretical approaches. Prerequisites: 23, or consent of instructor; and successful completion of the ear-training and piano-proficiency examinations. GER:3a

4 units, Win (Barth)

**MUSIC 122A. Eighteenth-Century Counterpoint**—Analysis and composition of two- and three-part inventions and three- and four-voice fugues. Use of keyboard, ear training, and sight singing underlies all written work. Prerequisites: 23, or consent of instructor; and successful completion of the ear-training and piano-proficiency examinations. GER:3a

4 units, Win (Jones)

**MUSIC 122B. Harmonic Materials of 19th Century**—Analysis of 19th-century music, with compositional exercises based on 19th-century models. Prerequisites: 23, or consent of instructor; and successful completion of the ear-training and piano-proficiency examinations. GER:3a

4 units, Spr (Plebuch)

**MUSIC 122C. Introduction to 20th-Century Composition**—Contemporary works, with emphasis on music since 1945. Projects in free composition based on 20th-century models. Prerequisites: 23, or consent of instructor; and successful completion of the ear-training and piano-proficiency examinations. GER:3a

4 units, Aut (Ferneyhough)

## COMPOSITION

**MUSIC 123. Undergraduate Seminar in Composition**—Weekly discussion on current trends in composition. May be repeated for credit. Prerequisite: music major, and 23 or consent of instructor. GER:3a

3 units, Aut (Hills), Win (Applebaum)

**MUSIC 125. Individual Undergraduate Projects in Composition**—Individual projects in creative work. May be repeated for credit. Prerequisites: music major, and at least one quarter of 123.

1-3 units, Aut (Hills), Win (C. Jones), Spr (Ulman)

**MUSIC 323. Doctoral Seminar in Composition**—Illustrated discussions of compositional issues and techniques. Students present their own work to the class, and individually to the instructor.

4 units, Aut (Applebaum), Win (Ferneyhough), Spr (Ulman)

**MUSIC 325. Individual Graduate Projects in Composition**

1-5 units, Aut, Win, Spr, Sum (Staff)

## HISTORY AND LITERATURE

**MUSIC 140-148. Seminars in Music History**—Specialized topics in music history are each offered at least once within any two-year period. Topics vary each year. May be repeated for credit. Music majors may repeat the same seminar in music history only once for credit towards the major and must turn in different papers the second time. GER:3a, WIM

**MUSIC 140. Studies in Medieval Music**—(Same as 240.) Pre- or corequisite: 23 (WIM at 4-unit level only.)

3-4 units, Aut (Gilbert) alternate years, not given 2005-06

**MUSIC 141. Studies in Renaissance Music**—(Same as 241.) Pre- or corequisite: 23. (WIM at 4-unit level only.)

3-4 units (Gilbert) alternate years, given 2005-06

**MUSIC 142. Studies in Baroque Music**—(Same as 242.) Pre- or corequisite: 23. (WIM at 4-unit level only.)

3-4 units (Plebuch) alternate years, given 2005-06

**MUSIC 143. Studies in Classic Music**—(Same as 243.) Pre- or corequisite: 23. (WIM at 4-unit level only.)

3-4 units, Win (Plebuch) alternate years, not given 2005-06

**MUSIC 144. Studies in Romantic Music**—(Same as 244.) Pre- or corequisite: 23 (WIM at 4-unit level only.)

3-4 units, Spr (Hadlock) alternate years, not given 2005-06

**MUSIC 145. Studies in Modern Music**—(Same as 245.) Pre- or corequisite: 23. (WIM at 4-unit level only.)

3-4 units (Ford) alternate years, given 2005-06

**MUSIC 148. Musical Shakespeare: Theater, Song, Opera, and Film**—(Same as 248, HUMNTIES 192G.) The role of music in productions, adaptations, and interpretations of Shakespeare's plays as theater, opera, and film from the Elizabethan era through the present. Emphasis is on the role of songs, stage music, and music in operatic

and film adaptations; also incidental music, orchestral tone poems, and art-song settings of lyrics from the plays. Plays include *Romeo and Juliet*, *Othello*, *Macbeth*, *Hamlet*, *The Tempest*, *Midsummer Night's Dream*, and *Twelfth Night*. Pre- or corequisite: 23 (WIM at 4- or 5-unit level only.) GER:3a

3-5 units (Grey) alternate years, given 2005-06

**MUSIC 164/264. Ritual Musics of the World**—(Same as CASA 164.) The roles that music plays in human ritual life: physical effects of music, shamanic healing, spirit possession, and rites of worship. Gender issues in ritual music. The power of music to create and affirm communities, and as a medium for spiritual knowledge. What can be known about people, places, and cultures through sound? How does music express and shape social identity? How are belief systems and patterns of social interaction manifested in musical practices? Sources include readings and guided listening to recorded music from cultural and religious traditions around the world. GER:3a,4a

4 units, Win (Diehl)

**MUSIC 221A,B. History of Music Theory**—The principal theories, theorists, and treatises of Western art music. Issues and controversies. Two quarter sequence.

**MUSIC 221A. Ancient Through Baroque**

4 units (Plebuch) alternate years, given 2005-06

**MUSIC 221B. Classical Through Modern**

4 units (Hinton) alternate years, given 2005-06

**MUSIC 240-248. Seminars in Music History**—For graduate students; topics as in 140-148. Participation in upper-class seminars, with additional in-depth research. Specialized topics in music history are each offered at least once within any two-year period. Topics vary each year.

**MUSIC 240. Studies in Medieval Music**—(Same as 140.)

3-4 units, Aut (Gilbert) alternate years, not given 2005-06

**MUSIC 241. Studies in Renaissance Music**—(Same as 141.)

3-4 units (Gilbert) alternate years, given 2005-06

**MUSIC 242. Studies in Baroque Music**—(Same as 142.)

3-4 units (Plebuch) alternate years, given 2005-06

**MUSIC 243. Studies in Classic Music**—(Same as 143.)

3-4 units, Win (Plebuch) alternate years, not given 2005-06

**MUSIC 244. Studies in Romantic Music**—(Same as 144.)

3-4 units, Spr (Hadlock) alternate years, not given 2005-06

**MUSIC 245. Studies in Modern Music**—(Same as 145.)

3-4 units (Ford) alternate years, given 2005-06

**MUSIC 248. Musical Shakespeare: Theater, Song, Opera, and Film**—(Same as 148, HUMNTIES 192G.)

3-5 units (Grey) alternate years, given 2005-06

**MUSIC 310. Research Seminar in Musicology**—For graduate students. Specialized topics vary each quarter.

3-5 units, Aut (Ford), Win (Hadlock), Spr (Gilbert)

**MUSIC 312A,B. Aesthetics and Criticism of Music**—For graduate students. Primary texts focusing on the nature, purposes, and uses of music and other arts.

**MUSIC 312A. Ancients and Moderns: Plato to Nietzsche**

4 units, Aut (K. Berger) alternate years, not given 2005-06

**MUSIC 312B. Heidegger to Today**

4 units, Win (K. Berger) alternate years, not given 2005-06

## COMPUTER MUSIC AND APPLICATIONS

**MUSIC 120. Auditory Remapping of Bioinformatics**—Representation of data related to bioinformatics and medical imaging. Physiological and perceptual perspectives. Representations of complexity in sound and types of auditory display applied to representation of data sets. Term project involving developing tools for sonification and/or applying these tools to a representation problem. Recommended: basic knowledge and interest in music, computer programming, or one of the biological sciences. GER:2b

1-3 units, Aut (J. Berger)

**MUSIC 120Z. Musique Concrète in the Digital Era**—For music majors or non-majors, and novice or experienced composers; geared toward computer music beginners. Introduction to experimental music composition using computer software (Pro Tools). Topics include: compositional techniques; sound editing; basic signal processing; stereo and multi-channel diffusion; electronic music performance practice; historical overview of related electronic music; and the meaning of sound, the aesthetic and legal ramifications of plunderphonics, and metaphor in electronic music. Weekly composition études and larger projects presented in concert. GER:3a

3 units, Aut (Staff)

**MUSIC 150. Musical Acoustics**—The physics of vibrating systems, waves, and wave motion. Time- and frequency-domain analysis of sound. Room acoustics, reverberation, and spatialization. The acoustics of musical instruments: voice, strings, and winds. Emphasis is on the practical aspects of acoustics in making music. Hands-on and computer-based lab. Prerequisites: music performance/composition experience, basic algebra, calculus, and physics. See web site. GER:2b

3 units, Spr (Smyth)

**MUSIC 151. Psychophysics and Cognitive Psychology for Musicians**—Elementary concepts and experiments relevant to the use of sound, especially synthesized, in music. Listening to sound examples. Emphasis is on salience and importance of auditory phenomena in music. Prerequisite: basic knowledge of music. See web site. GER:3a,WIM

4 units, Win (J. Berger)

**MUSIC 154. Composition and Performance of Instrumental Music with Electronics**—Aesthetic, analytical issues of mixed instrumental and electronic works. Focus is on one or a few works leading to a public performance at the end of the quarter. Prerequisite: experience in analysis of contemporary music and experience with electronic music.

1-3 units, Spr (J. Berger)

**MUSIC 192. Theory and Practice of Audio Recording**

**MUSIC 192A. Foundations of Sound-Recording Technology**—

For upper-division undergraduates and graduate students; preference to music majors with MST specialization. Topics: elementary electronics, the physics of sound transduction and microphone operation, selection and placement; mixing consoles; connectors and device interconnection; grounding and shielding; the principles of analog magnetic recording; operation maintenance of recording equipment; the basic principles of recording engineering. Limited enrollment. Prerequisites: 151; algebra, physics basics, and consent of instructor. GER:2b

3 units, Aut (Kadis)

**MUSIC 192B. Advanced Sound Recording Technology**—Topics: noise reduction techniques; dynamics and time-delay audio effects; the principles of digital audio; disk- and tape-based digital recorders; digital audio workstations and editing; advanced multitrack techniques; SMPTE and MIDI time code and device synchronization; MIDI sequencing and synchronization. See <http://ccrma.stanford.edu/courses/>. Prerequisite: 192A. GER:2b

3 units, Win (Kadis)

**MUSIC 192C. Session Recording**—Independent engineering of recording sessions. May be repeated for credit. Prerequisites: 192A,B.

1-2 units, Aut, Win, Spr (Kadis)

**MUSIC 220. Computer-Generated Music**

**MUSIC 220A. Fundamentals of Computer-Generated Sound**—Techniques for digital sound synthesis, effects, and reverberation. Topics: summary of digital synthesis techniques (additive, subtractive, nonlinear, wavetable, spectral-modeling, and physical-modeling); digital effects algorithms (phasing, flanging, chorus, pitch-shifting, and vocoding); and techniques for digital reverberation. Majors (undergraduate or graduate) must take for 4 units. See <http://ccrma.stanford.edu/courses/>.

2-4 units, Aut (Chafe)

**MUSIC 220B. Compositional Algorithms, Psychoacoustics, and Spatial Processing**—The use of high-level programming language as a compositional aid in creating musical structures. Advanced study of sound synthesis techniques. Simulation of a reverberant space and control of the position of sound within the space. See <http://ccrma.stanford.edu/courses/>. Prerequisite: 220A.

2-4 units, Win (Lopez-Lezcano)

**MUSIC 220C. Research Seminar in Computer-Generated Music**—Individual projects in composition, psychoacoustics, or signal processing. See <http://ccrma.stanford.edu/courses/>. Prerequisite: 220B.

2-4 units, Spr (Chafe)

**MUSIC 220D. Research in Computer-Generated Music**—Independent research projects in composition, psychoacoustics, or signal processing. May be repeated for credit. Prerequisite: 220C. See <http://ccrma.stanford.edu/courses/>.

1-4 units, Aut, Win, Spr, Sum (Staff)

**MUSIC 250. Seminar in Human-Computer Interfaces for Musical Purposes**—Students also taking the full 220 series must take 250A before 220C.

**MUSIC 250A. HCI Theory and Practice**—HCI issues as they relate to music applications in composition and performance. Project-oriented, examining issues from the technical and theoretical perspectives of computer science, haptics, and music theory. See <http://ccrma.stanford.edu/courses/250a/>.

3-4 units, Aut (Verplank)

**MUSIC 250B. HCI Performance Systems**—Continuation of 250A, concentrating on interactive computer-music performance systems. See <http://ccrma.stanford.edu/courses/250b/>. Prerequisite: 250A.

1-4 units, Win (Verplank)

**MUSIC 253. Musical Information: An Introduction**—The kinds of musical information used in sound, graphical, and analytical applications. Emphasis is on independent concepts and principles in music representation and research objectives (repertory analysis, performance analysis, theoretical models, similarity, and stylistic simulation). Examples from Western art music. Prerequisites: one year of music theory or equivalent; methods courses in fields such as musical analysis, symbolic systems, information processing, sound engineering, or intellectual property.

1-4 units, Win (Selfridge-Field)

**MUSIC 254. Applications of Musical Information: Query, Analysis, and Style Simulation**—Participants explore the issues introduced in 253 in greater depth and take initiative for research projects related to a theoretical or methodological issue, a software project, or a significant analytical result. Prerequisite: 253 or consent of instructor.

1-4 units, Spr (Selfridge-Field)

**MUSIC 255. Orchestration and Timbral Analysis**—Introduction to the art and craft of orchestration and timbral analysis. Combines a hands-on approach to orchestration with applied computational timbral analysis. Geared for music majors with a concentration or interest in composition or MST. Weekly assignments in orchestration and timbre analysis, along with computer-based timbre analysis. Final project involving either computer-based analysis or an advanced orchestration assignment. See <http://ccrma.stanford.edu/courses/255/>.

1-4 units (J. Berger) not given 2004-05

**MUSIC 319. Research Seminar on Computational Models of Sound Perception**—All aspects of auditory perception, often with emphasis on computational models. Topics: music perception, signal processing, auditory models, pitch perception, speech, binaural hearing, auditory scene analysis, basic psychoacoustics, and neurophysiology. See <http://ccrma.stanford.edu/courses/>.

1-3 units, Aut, Win, Spr (Slaney)

**MUSIC 320. Introduction to Digital Audio Signal Processing**—Digital signal processing for music and audio research. Topics: complex numbers, sinusoids, spectrum representation, sampling and aliasing, digital filters, frequency response, z transforms, transfer-function analysis, and associated Matlab software. See <http://ccrma.stanford.edu/courses/320/>.

2-4 units, Aut (J. Smith)

**MUSIC 420. Signal Processing Methods in Musical Acoustics**—Computational methods in musical sound synthesis and digital audio effects based on acoustic physical models. Topics: acoustic simulation with delay lines, digital filters, and nonlinear elements; comb filters; allpass filters; artificial reverberation; delay-line interpolation and sampling-rate conversion; phasing, flanging, and chorus effects; efficient computational models of strings, woodwinds, brasses, and other musical instruments. See <http://ccrma.stanford.edu/courses/420/>. Prerequisite: 320 or equivalent, PHYSICS 21 or equivalent course applying Newton's laws of motion. Recommended: EE 264, PHY 113.

3-4 units, Win (J. Smith)

**MUSIC 421. Audio Applications of the Fast Fourier Transform (FFT)**—Spectrum analysis and signal processing using the FFT with emphasis on audio applications. Topics: Fourier theorems; FFT windows; spectrum analysis; spectrograms; sinusoidal modeling; spectral modeling synthesis; FFT convolution; FIR filter design and system identification; overlap-add and filter-bank-summation methods for short-time Fourier analysis, modification, and resynthesis. See <http://ccrma.stanford.edu/courses/421/>. Prerequisites: 420 or consent of instructor.

3-4 units, Spr (J. Smith)

**MUSIC 422. Perceptual Audio Coding**—History and basic principles: development of psychoacoustics-based data-compression techniques; perceptual-audio-coder applications (radio, television, film, multimedia/internet audio, DVD, EMD). In-class demonstrations: state-of-the-art audio coder implementations (such as AC-3, MPEG) at varying data rates; programming simple coders. Topics: audio signals representation; quantization; time to frequency mapping; introduction to psychoacoustics; bit allocation and basic building blocks of an audio codec; perceptual audio codecs evaluation; overview of MPEG-1, 2, 4 audio coding and other coding standards (such as AC-3). Prerequisites: knowledge of digital audio principles, familiarity with C programming. Recommended: 320, EE 261. See web site.

3 units, Win (Bosi)

**MUSIC 423. Signal Processing Research**—Graduate seminar. See <http://www-ccrma.stanford.edu/courses/423/>.

1-4 units, Aut, Win, Spr (J. Smith)

**MUSIC 424. Signal Processing Techniques for Digital Audio Effects**—Techniques for dynamic range compression, reverberation, equalization and filtering, panning and spatialization, digital emulation of analog processors, and implementation of time-varying effects. Single-band and multiband compressors, limiters, noise gates, de-essers, convolutional reverberators, parametric and linear-phase equalizers, wah-wah and envelope-following filters, and the Leslie. Students develop effects algorithms of their own design in labs. Prerequisites: digital signal processing, sampling theorem, digital filtering, and the Fourier transform at the level of MUSIC 320 or EE 261; Matlab and modest C programming experience. Recommended: MUSIC 420 or EE 264; audio effects in mixing and mastering at the level of MUSIC 192.

3-4 units, Spr (Staff)

## PERFORMANCE GROUP INSTRUCTION

*Note*—Special fee of \$100 per quarter for 12A,B,C (non-majors); 65A,B; 72, 73, 74, 75, 76, 77.

**MUSIC 12A,B,C. Introductory Piano Class**—(A=level 1; B=level 2; C=level 3) Preference given to music majors.

1 unit, Aut, Win, Spr, Sum (Zerlang)

**MUSIC 65A,B. Voice Class I, II**—Group (7 students to a section) beginning voice for the non-major (A = level 1; B = level 2).

*1 unit, Aut, Win, Spr (Giovannetti), Sum (Linduska)*

**MUSIC 65C. Voice Class (Majors and Ensemble Members)**—For music majors and non-majors who are members of departmental choral ensembles.

*1 unit, Aut, Win, Spr (Wait)*

**MUSIC 72-77. Small-Group, Intermediate-Level Instruction**—Minimum enrollment required. May be repeated for credit.

**MUSIC 72A. Intermediate Piano Class**—For intermediate students. Prerequisites: 12C or equivalent, audition.

*1 unit, Aut, Win, Spr, Sum (Zerlang)*

**MUSIC 72B. Organ Class**—For beginning organ students who have keyboard skills.

*1 unit, Aut, Win, Spr (Morgan)*

**MUSIC 72C. Harpsichord Class**—For beginning harpsichord students who have keyboard skills.

*1 unit, Aut, Win, Spr (Thornburgh)*

**MUSIC 72D. Jazz Piano Class**—By invitation only; priority to majors and jazz-ensemble participants.

*1 unit, Aut, Win, Spr (Gustavson)*

**MUSIC 73. Intermediate Voice Class**—For intermediate students. Admission by audition.

*1 unit, Aut, Win, Spr (Giovannetti)*

**MUSIC 74C. Classical Guitar Class**

*1 unit, Aut, Win, Spr (Ferguson)*

**MUSIC 74D. Harp Class**

*1 unit, Aut, Win, Spr (Chauvel)*

**MUSIC 75A. Flute Class**

*1 unit, Aut, Win, Spr (Staff)*

**MUSIC 75B. Renaissance Wind Instruments Class**

*1 unit, Aut, Win, Spr (Myers)*

**MUSIC 76. Brass Instruments Class**

*1 unit, Aut, Win, Spr (Kenley)*

**MUSIC 77. Percussion Class**

*1 unit, Aut, Win, Spr (Veregge)*

## INDIVIDUAL INSTRUCTION

**MUSIC 172/272-177/277. Individual Vocal and Instrumental Instruction**—270-level courses are for advanced students. Weekly lessons throughout the academic quarter. Special fee of \$175 per quarter for majors and \$350 for non-majors (fees remain the same for 1, 2, or 3 units). Prospective students must demonstrate, by audition with the appropriate teacher, a minimum proficiency on instrument. Minimum proficiency requirements for each instrument are posted on the bulletin board outside Braun 102 and at <http://music.stanford.edu/Academics/Auditions.html>. May be repeated for credit.

*1-3 units, Aut, Win, Spr (Staff)*

**MUSIC 172/272. Keyboard Instruments**

**MUSIC 172A/272A. Piano**—Private lessons and group master class weekly.

*1-3 units (Barth, Dahl, Schultz, Weldy)*

**MUSIC 172B/272B. Organ**

*1-3 units (Morgan)*

**MUSIC 172C/272C. Harpsichord**

*1-3 units (Thornburgh)*

**MUSIC 172D/272D. Jazz Piano**—By invitation only; priority to majors and jazz-ensemble participants.

*1-3 units (Gustavson)*

**MUSIC 172E/272E. Fortepiano**

*1-3 units (Barth)*

**MUSIC 173/273. Voice**

*1-3 units (Giovannetti, Lane, Wait)*

**MUSIC 174/274. Stringed Instruments**

**MUSIC 174A/274B. Violin**

*1-3 units (Kleyman, Harms, Nuttall, Shiffman)*

**MUSIC 174B/274B. Viola**

*1-3 units (Kleyman, Robertson)*

**MUSIC 174C/274C. Violoncello**

*1-3 units (S. Harrison, Costanza)*

**MUSIC 174D/274D. Contrabass**

*1-3 units (Moyer)*

**MUSIC 174E/274E. Viola Da Gamba**

*1-3 units (Dornenburg)*

**MUSIC 174F/274F. Classical Guitar**

*1-3 units (Ferguson)*

**MUSIC 174G/274G. Harp**

*1-3 units (Chauvel)*

**MUSIC 174H/274H. Baroque Violin**

*1-3 units (Martin)*

**MUSIC 174I/274I. Early Plucked Strings**

*1-3 units (Staff)*

**MUSIC 175/275. Woodwind Instruments**

**MUSIC 175A/275A. Flute**

*1-3 units (Blaisdell, Hawley, Holmes-Schaeffle, Maestre)*

**MUSIC 175B/275B. Oboe**

*1-3 units, Aut (Hubbard), Win, Spr (Matheson)*

**MUSIC 175C/275C. Clarinet**

*1-3 units (Brandenburg)*

**MUSIC 175D/275D. Bassoon**

*1-3 units (Olivier)*

**MUSIC 175E/275E. Recorder/Renaissance Wind Instruments**

*1-3 units (Myers)*

**MUSIC 175F/175F. Saxophone**

*1-3 units (Stein)*

**MUSIC 175G/275G. Baroque Flute**

*1-3 units (Claire)*

**MUSIC 176/276. Brass Instruments**

**MUSIC 176A/276A. French Horn**

*1-3 units (Ragent)*

**MUSIC 176B/276B. Trumpet**

*1-3 units (Johnson-Hamilton)*

**MUSIC 176C/276C. Trombone**

*1-3 units (Kenley)*

**MUSIC 176D/276D. Tuba**

*1-3 units (Clements)*

**MUSIC 177/277. Percussion**

*1-3 units (Veregge)*

## PERFORMANCE PRACTICES

**MUSIC 126. Introduction to Thoroughbass**—The development of continuo techniques and skills for figured-bass realization. Performance and analysis of selected repertoire, using thoroughbass principles and exercises based on historical theoretical treatises. Prerequisite: 21.

*1-3 units, Win (T. Berger)*

**MUSIC 130. Elementary Conducting**

**MUSIC 130A. Introduction to Conducting**—The fundamentals of baton techniques and rehearsal procedures. The development of coordination of the members of the body involved in conducting; fluency in the various beat patterns and meters; dynamics, tempi, cueing, and use of the left hand in conducting. Prerequisites: 121 and diagnostic musicianship exam given first day of class; preference given to students who have also completed 122B.

*3 units, Aut (Aquilanti) alternate years, not given 2005-06*

**MUSIC 130B. Elementary Orchestral Conducting**—Prerequisites: 127 or previous orchestral performance experience, 130A.

*3 units, Spr (Cai) alternate years, not given 2005-06*

**MUSIC 130C. Elementary Choral Conducting**—Techniques include: warm-ups, breathing, balance, blend, choral tone, isolation principles, recitative conducting, preparation, and conducting of choral/orchestral works. Prerequisite: 130A.

*3 units, Win (Sano) alternate years, not given 2005-06*

**MUSIC 169A/269A. Seminar in Performance Practices**—Performance techniques, theoretical principles, aesthetics, and musical resources of various historical periods. GER:3a

*4 units (Gilbert) alternate years, given 2005-06*

**MUSIC 181. Solo Vocal Repertoire**—Solo vocal repertoire for advanced vocal students. Song and operatic literature is studied and performed by class participants. Repertoire varies and/or spans more than one quarter, allowing students to repeat the course for credit.

*1 unit, Aut, Win, Spr (Lane)*

**MUSIC 182. Diction for Singers**—The international phonetic alphabet and its application to German, French, and Italian vocal literature. Open also to pianists interested in vocal coaching and choral conducting.

*1 unit, Win (Dahl)*

**MUSIC 183. Art Song Interpretation**—For advanced singers and pianists as partners. Performance class in a workshop setting. Prerequisite: consent of instructor. Recommended: 170 for pianists or 182 for singers.

**MUSIC 183A. German Art Song Interpretation**—Including composers from Beethoven and Schubert to Wolf and Strauss. for advanced singers and pianists as partners. Performance class in a workshop setting. Prerequisite: consent of instructor. Recommended: 170 for pianists or 182 for singers.

*1 unit (Dahl) alternate years, given 2005-06*

**MUSIC 183B. French Art Song Interpretation**—Composers include Fauré, Debussy, Ravel, and Poulenc. For advanced singers and pianists as partners. Performance class in a workshop setting. Prerequisite: consent of instructor. Recommended: 170 for pianists or 182 for singers.

*1 unit, Spr (Dahl) alternate years, not given 2005-06*

**MUSIC 184. Schumann Song Cycles**—For advanced singers and pianists as partners. Focus is on *Dichterliebe*, and *Frauenliebe und Leben*. Performance class in workshop setting. Prerequisite: consent of instructor. Recommended: 170 or 182.

*1 unit (Dahl) alternate years, given 2005-06*

**MUSIC 230. Advanced Orchestral Conducting**—May be repeated for credit. Prerequisite: 130B.

*2-4 units, Aut, Win, Spr (Cai)*

**MUSIC 231. Advanced Choral Conducting**—May be repeated for credit. Prerequisite: 130C.

*2-4 units, Aut, Win, Spr (Sano)*

## ENSEMBLE

An audition is required for admission to any University musical ensemble; audition schedules are posted during the registration period in Autumn Quarter. Audition is by appointment in Winter and Spring quarters: contact the ensemble director. Membership is open to all students including those who do not register for credit, although these courses may be repeated for credit. Many Department of Music ensembles tour on a regular basis, usually after commencement in June.

**MUSIC 156. "sic": Improvisation Collective**—Small ensemble devoted to learning trans-idiomatic improvisation techniques and composing indeterminate pieces in a workshop setting. One major concert. Prerequisite: access to an instrument. Improvisational experience and conventional instrumental virtuosity not required.

*1 unit, Win (Applebaum)*

**MUSIC 157. Introduction to Mariachi Ensemble**—Introduction to the practice of mariachi music, tradition, and history. Focus is on learning traditional *sones*, *rancheras*, *huapangos*, and *boleros*. Requirements: ability to play and access to instruments (violin, trumpet, guitar, vihuela, and guitarrón).

*1 unit, Aut, Win, Spr (Lucero)*

**MUSIC 159. Early Music Singers**—Small choir specializing in Medieval, Renaissance, and early Baroque vocal music. One major concert per quarter.

*1 unit, Aut (Mahrt), Win, Spr (Gilbert)*

**MUSIC 159A. Shape-Note Singers**—This ensemble sings early American sacred song including Psalms, anthems, fusing tunes of New England, and shape-note hymns from books such as *The Southern Harmony* and *The Sacred Harp*. Participants sing and take turns leading the group in tunes of their choice. General admission. Recommended: reading ability in music.

*1 unit, Aut (Gilbert)*

**MUSIC 160. University Orchestra**—70- to 100-member ensemble performing major orchestral works; minimum one concert per quarter.

*1 unit, Aut, Win, Spr (Cai)*

**MUSIC 161. University Bands**

**MUSIC 161A. Stanford Wind Ensemble**—40- to 50-member ensemble performing transcriptions of symphonic music, brass band music, and repertoire composed specifically for symphonic band. One concert per quarter.

*1 unit, Aut, Win, Spr (Aquilanti)*

**MUSIC 161B. Jazz Orchestra**—Big band format. Repertoire drawn primarily from the contemporary jazz-ensemble literature. One formal concert per quarter.

*1 unit, Aut, Win, Spr (Berry)*

**MUSIC 161C. Red Vest Band**—A small ensemble of the Leland Stanford Junior University Marching Band open to members of the LSJUMB by audition and consent of instructor. Members perform at all men's and women's home basketball games and travel to some away and post-season games. Twice-weekly rehearsals focus on introduction of new student arrangements and the LSJUMB's repertoire of rock, funk, and traditional styles.

*1 unit, Win (Aquilanti)*

**MUSIC 162. Symphonic Chorus**—100- to 150-voice ensemble, performing major choral masterworks with orchestra. One concert per quarter.

*1 unit, Aut, Win, Spr (Sano)*

**MUSIC 163. Memorial Church Choir**—Official choir of Memorial Church, furnishing music for Sunday services and special occasions in the church calendar.

*2 units, Aut, Win, Spr (Wait)*

**MUSIC 165. Chamber Chorale**—24-voice chamber ensemble, specializing in virtuoso choral repertoire from all periods of Western art music.

*1 unit, Aut, Win, Spr (Sano)*

**MUSIC 167. University Singers**—Mixed-repertoire chorus, performing a variety of choral repertoire from all periods of Western art music and from other world cultures.

*1 unit, Aut, Win, Spr (Morgan)*

**MUSIC 169. Stanford Taiko**—Select North American taiko ensemble, performing traditional and contemporary repertoire for Japanese drums. Multiple performances in Winter and Spring quarters, also touring; instrument construction and maintenance. Admission by audition in Autumn Quarter only.

*1 unit, Aut, Win, Spr (Sano, Uyechi)*

**MUSIC 170. Collaborative Piano**—Performance workshop. Techniques of collaboration with vocalists and instrumentalists in repertoire ranging from songs and arias to sonatas and concertos. Prerequisite: private-lesson-proficiency level in piano, or consent of instructor.

*1 unit, Aut (Dahl)*

**MUSIC 171. Chamber Music**—Small combinations for strings, winds, and keyboard instruments. Open to students at the private-lesson-proficiency level to hone ensemble skills, preferably while taking private lessons. Selected string instrument participants are invited to participate in a chamber orchestra, led by members of the St. Lawrence String Quartet, without conductor. Winter Quarter: chamber orchestra in conjunction with chamber chorale performing choral sacred music of the Baroque period, led by members of the St. Lawrence. All new and returning students are required to audition.

*1 unit, Aut, Win, Spr (Staff)*

## UNDERGRADUATE DIRECTED READING AND RESEARCH

**MUSIC 197. Undergraduate Teaching Apprenticeship**—Work in an apprentice-like relationship with faculty teaching a student-initiated course. Prerequisite: consent of instructor.

*1-2 units, Aut, Win, Spr (Staff)*

**MUSIC 198. Concentrations Project**—For concentration program participants only. Must be taken in senior year.

*4 units, Aut, Win, Spr (Staff)*

**MUSIC 199. Independent Study**—For advanced undergraduates and graduate students to do work outside the regular curriculum. Before registering, student must present project and enlist a faculty sponsor.

*1-5 units, Aut, Win, Spr, Sum (Staff)*

## GRADUATE RESEARCH AND SPECIAL STUDIES

**MUSIC 200. Graduate Proseminar**—Required of first-year graduate students in music. Introduction to research in music, bibliographical materials, major issues in the field, philosophy, and methods in music history. Guest lecturers and individual research topics.

*4 units, Aut (K. Berger)*

**MUSIC 269B. Research in Performance Practices**—Directed reading and research.

*1-5 units, Aut, Win, Spr, Sum (Staff)*

**MUSIC 280. TA Training Course**—Required for doctoral students serving as teaching assistants. Orientation to resources at Stanford, guest presentations on the principles of common teaching activities, supervised teaching experience. Students who entered in the Autumn should take 280 in the Spring prior to the Autumn they begin teaching.

*1 unit, Spr (Sargent)*

**MUSIC 300. Seminar in Notation**—Western notation of the Middle Ages and Renaissance: principles, purposes, and transcription.

### MUSIC 300A. Medieval Notation

*4 units (Mahrt) alternate years, given 2005-06*

### MUSIC 300B. Renaissance Notation

*4 units (Mahrt) alternate years, given 2005-06*

**MUSIC 301. Analysis of Music**—Current trends, issues, and methods.

### MUSIC 301A. Analysis of Music: Modal

*4 units, Aut (Mahrt)*

### MUSIC 301B. Analysis of Music: Tonal

*4 units, Win (Grey)*

### MUSIC 301C. Analysis of Music: Post-Tonal

*4 units, Spr (Ferneyhough)*

**MUSIC 302. Research in Musicology**—Directed reading and research.

*1-5 units, Aut, Win, Spr, Sum (Staff)*

**MUSIC 321. Readings in Music Theory**—Directed reading and research.

*1-5 units, Aut, Win, Spr, Sum (Staff)*

### MUSIC 341. Ph.D Dissertation

*1-9 units, Aut, Win, Spr, Sum (Staff)*

### MUSIC 399. D.M.A. Final Project

*1-9 units, Aut, Win, Spr, Sum (Staff)*

## OVERSEAS STUDIES PROGRAM

*Academic Director: Amos Nur*

### Stanford Program in Australia

*Director, Centre for Marine Studies, University of Queensland: Ove Hoegh-Guldberg*

*Faculty: Kevin Arrigo, Tony Chiffings, Sophie Dove, Norman Duke, Maoz Fine, Ron Johnstone, Michael Pole, Roger Shore, James Udy, Lorenzo Veracini, Selina Ward*

### Stanford Program in Beijing

*Director: Jason D. Patent*

*Faculty: Albert Dien, Min Hu, Harold Kahn, Wenjun Li, Dingcheng Ren, Xiaochun Sun, Daqing Zhang, Pei Zhang, Qi Zhang, Shiqui Zhang, Dunhua Zhao, Tong Zhu*

### Stanford Program in Berlin

*Director: Karen Kramer*

*Faculty: Theodore Andersson, Maria Biege, Ulrich Brückner, Oksana Bulgakowa, Dubravka Friesel-Kopecki, Susanne Herzog, Wolf-D. Junghanns, Ingo Klein, Christa Maerker, Franz Neckenig, Maurice Rehm, Sylke Tempel, Jochen Wohlfeil*

### Stanford Program in Florence

*Director: Ermelinda Campani*

*Faculty: Khaled Allam, Antonio Cassese, Mark Cutkosky, Daniela Lamberini, Joseph Levi, Mirella Loda, Susanna Loeb, Charles Loverme, Giuseppe Mammarella, Leonardo Morlino, Stefano Pallanti, Lapo Pistelli, Fiorenza Quercioli, Jack Rakove, Filippo Rossi, Timothy Verdon*

### Stanford Center for Technology and Innovation (SCTI)—Kyoto

#### Kyoto Center for Japanese Studies (KCSJ)

*Director: Terry MacDougall*

*Faculty: Rebecca Copeland, Walter Edwards, Toshiko Fujiwara, Toshihiko Hayashi, Takashi Hikino, Fujiko Hotta, Mitsugu Ichikawa, James Ketelaar, Catherine Ludvik, Junko Minamoto, Dwight Nishimura, Melissa Rinne, Haruka Ueda, Mariko Uemiyama, Chihiro Yamaoka, Emiko Yasumoto*

### Stanford Program in Oxford

*Director: Geoffrey Tyack*

*Faculty: Giovanni Capocchia, John Darwin, Avner Greif, Raymond Hintz, Helen Kidd, John L'Heureux, Robert McMahon, Amanda Palmer, Emma Plaskitt, Derek Robinson, Trevor Rowley, John Senior, Jonathan Wordworth*

### Stanford Program in Paris

*Director: Estelle Halevi*

*Faculty: Joel Beinin, Colette Deremble, Jean Paul Deremble, Benjamin Dupas, Marc Germanangue, Marie Grée, Catherine Grenier-Sennelier, Patrick Guedon, Marie-Claire Lavabre, Marc Lazar, Jacques Le Cacheux, Pamela Lee, Fabienne Maitre, Anthony Mangeon Nonna Mayer, Florence Mercier, Marie-Madeleine Mervant-Roux, Elizabeth Molkou, Dominique Remy-Granger, Marie-Christine Ricci, Paul Switzer, Fabrice Virgili*

### Stanford Program in Santiago

*Director: Edmundo Fuenzalida*

*Faculty: Lorenzo Agar, Germán Correa, Claudio Fuentes, Maria Paz Haro, John Kunz, Oscar Muñoz, Veronica Poblete, Hernan Pons, Jorge Ruffinelli, Bernardo Subercaseaux, Teresa Valdés, Ignacio Walker*

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*Web Site: http://osp.stanford.edu*

Courses given in Overseas Studies Program have subject codes beginning with OSP. For a complete list of subject codes, see Appendix.

Stanford University encourages students to explore the opportunities of study abroad through programs in Australia, Beijing, Berlin, Florence, Kyoto, Oxford, Paris, and Santiago. Students may enroll for one or more quarters at most centers. Course offerings in engineering, humanities, sciences, and social sciences provide full Stanford credit. Many courses also count toward major requirements and/or fulfill General Education Requirements. Academic or paid internships are available at the Berlin, Florence, Kyoto-SCTI, Paris, and Santiago programs. Research opportunities are available in various formats at different centers. Minimum academic and language prerequisites are specific to each program. See <http://osp.stanford.edu> for information on these requirements.

While studying overseas through OSP, students remain registered at Stanford and pay regular tuition, along with the Overseas Studies fee which is based on Stanford room and board rates. Regular financial aid applies, and may be increased to cover additional costs. At most centers, students live in a homestay or with local students.

Overseas Studies, located on the first floor of Sweet Hall, has full-time staff members and student advisers to assist in planning for overseas study. The following information, while accurate at the time of printing, is subject to change. See <http://osp.stanford.edu> for updated information.

## COURSES

(AU) indicates that the course is subject to the University Activity Unit limitations (8 units maximum).

International Relations has approved a number of Overseas Studies courses for major credit; these are listed in the “International Relations” section of this bulletin.

### AUSTRALIA

**OSPAUSTL 10. Coral Reef Ecosystems**—(Enroll in BIOSCI 109Z, EARTHSYS 120X, HUMBIO 61X.) Key organisms and processes, and the complexity of coral reef ecosystems. Students explore the Great Barrier Reef from the southern end which demonstrates the physical factors that limit coral reefs, to the northern reef systems which demonstrate key aspects of these high biodiversity ecosystems. Human-related changes. Emphasis is on research experiences and development of analytical skills. Two units only counted for Biology major. GER:2b

*3 units, Aut (Arrigo, Dove, Hoegh-Guldberg)*

**OSPAUSTL 20. Coastal Resource Management**—(Enroll in BIOSCI 110Z, EARTHSYS 121X, HUMBIO 62X.) Problem solving, research, communication, teamwork, and social assessment skills in sustainable coastal zone management. Issues include: ecosystem functions and values at risk under proposed development in case study; environmental outcomes most desirable for the local stakeholders; features of the human communities and their function as they relate to the management options; tools or mechanisms for a sustainable management outcome. Taught by multidisciplinary team that includes Australian and developing country experts. Two units only counted for Biology major. GER:2b

*3 units, Aut (Johnstone, Udy)*

**OSPAUSTL 30. Coastal Forest Ecosystems**—(Enroll in BIOSCI 111Z, EARTHSYS 122X, HUMBIO 63X.) Prehistory of Australian rainforest and how rainforest structure and biodiversity change with altitude, latitude, and geology. Tropical coastal marine wetlands, mangrove forests, and the relationship between land- and sea-based biota. Biology and ecology of marine plants, mangroves, and tropical salt marsh. Introduction to specialized fields of marine plant biology and ecology including biogeography and evolution, aquatic plant ecophysiology, water quality and bioindicator techniques, pollution and eutrophication, and environmental control of marine plant distribution and productivity. Two units only counted for Biology major. GER:2b

*3 units, Aut (Duke, Pole)*

**OSPAUSTL 40. Australian Studies**—Introduction to Australian society, history, culture, politics, and identity through lectures, tutorial work, and field trips. Two sections: one draws on social science framework and methodology; the other on literature, visual art, and popular culture.

*3 units, Aut (Veracini)*

**OSPAUSTL 50. Targeted Research Project**—Prior to arriving in Australia, students establish a link with University of Queensland faculty to develop project ideas that combine personal interests and career goals with opportunities presented by the Australian Coastal Studies program, such as how mangrove roots find sediment rich zones of the shore, or the dynamics of ecotourism in southern and northern coastal Queensland. Project report and presentation in Australia.

*4 units, Aut (Hoegh-Guldberg)*

### BEIJING

**OSPBEIJ 10. The Chinese Past: The Golden Age of Chinese Archaeology**—(Enroll in CHINGEN 158B, HISTORY 193V.) China’s early history and archaeological discoveries through the Ming dynasty. How the articulation of these approaches illuminates problems in both fields. Guest lecturers from the Department of Archaeology at Peking University. Field trips to local sites. GER:3a,4a

*5 units, Aut (Dien)*

**OSPBEIJ 12. Environmental Challenges in China’s Development**—(Enroll in EARTHSYS 105X.) Pressures on China’s environment and natural resources resulting from its transition from a planned economy to a market economy. Social, economic, and environmental issues; health effects of environmental pollution; limitations on resources for development. Social responses to environmental challenges; and strategies for sustainable development. GER:3b

*4 units, Aut (Zhu, Zhang, Hu, Li)*

**OSPBEIJ 14. Comparing the Chinese and American Legal Systems**—China’s legal system and ongoing legal reforms with comparison to corresponding systems in the U.S. The framework of Chinese society, traditional legal culture, and changing social processes. GER:3b

*4 units, Aut (Zhang, Q)*

**OSPBEIJ 15. Cultural Competency: Navigating Chinese Culture**—Making sense of unfamiliar cultural and linguistic experiences. Encounters and obstacles resulting from cultural and linguistic differences, and the lessons to be gained.

*1 unit, Aut (Patent)*

**OSPBEIJ 16. Philosophy and Religion, East and West**—(Enroll in RELIGST 19B.) Sacred, secular, intellectual, practical, indigenous, and introduced elements in Chinese culture. Chinese religion, ethics, and philosophy through comparisons with Western counterparts: Confucianism, Taoism, and Zen Buddhism; Greek philosophy, Christianity, and modernity. Comparisons include: cosmology and moral metaphysics; human nature and original sin; Confucian humanity and Christian love; individualism and collectivism; shame culture and guilt culture; and Asian values and modernization. GER:3a

*4 units, Aut (Zhao)*

**OSPBEIJ 17. Careers in China**—Introduction to a wide variety of career options involving China. Weekly talks focusing on personal work experiences in China by speakers from all walks of life.

*1 unit, Aut (Patent)*

**OSPBEIJ 18. Chinese Literature**—Focus is on classical literature. Literary history of Chinese culture, most important authors, characteristics of the Chinese literary tradition. Comparative method applied to universal literary phenomena such as motif and genre. Recommended: ability to read Chinese. GER:3a

*4 units, Spr (Zhang, P)*

**OSPBEIJ 20. Beijing: The City and its Significance in History and Tradition**—(Enroll in CHINGEN 157B, URBANST 157V.) The city in China as exemplified by Beijing’s city planning, architecture, and strategic placement *vis-à-vis* the Great Wall and the N. China Plain. Its influence as the capital on culture and artistic achievement, and on political thought. Students choose an aspect of Beijing such as architecture, religion, or neighborhoods for individual projects. Local and foreign scholars meet with students. GER:3b,4a

*3 units, Aut (Dien)*

**OSPBEIJ 22. Language, Culture and Meaning: Understanding Human Cognition in a Crosscultural Context**—Cognitive linguistics including metaphor, metonymy, image schemas, frame semantics, and mental spaces. Theorists and empirical investigations. Beijing as example: how cognition and culture interact; how human beings are cultural, and how culture and language influence behaviors and expectations. GER:3b  
4 units, Spr (Patent)

**OSPBEIJ 30. The Emperor's City: Imperial Conceptions of Urban Space**—(Enroll in HISTORY 291V, URBANST 158V.) Growth of Beijing as an imperial site and how the city changed the urban environment under dynastic visions of universal empire. How time, space, and architecture intersect and reveal arrangements of political and cultural power and the ritual basis of authority. Past models of the Chinese imperial city, the legacy of the city-as-ruin in the 20th century, and its reinvention as museum and relic in the post-imperial age. GER:3a,4a  
5 units, Spr (Kahn)

**OSPBEIJ 32. Food in Chinese History**—(Enroll in HISTORY 292V.) Production, processing, and consumption from the 10th-21st centuries. How grains have been grown and readied for consumption. Subsistence, the growth of markets and commerce, restaurants, and regional or ethnic foods. Why has food been medicalized in modern times? More reading and writing than eating. Local field trips. GER:3b,4a  
5 units, Spr (Kahn)

### CHINESE LANGUAGE PROGRAM

**OSPBEIJ 2,3. Second-Year Modern Chinese**—(Enroll in CHINLANG 21C/23C.)  
5 units, 2: Aut, 3: Spr (Staff)

**OSPBEIJ 4,5. Third-Year Modern Chinese**—(Enroll in CHINLANG 101C/103C.)  
5 units, 4: Aut, 5: Spr (Staff)

**OSPBEIJ 6,7. Advanced Modern Chinese**—(Enroll in CHINLANG 211C,213C.)  
5 units, 6: Aut, 7: Spr (Staff)

### BERLIN

**OSPBER 18. Medieval Women Between Heathendom and Christendom**—(Enroll in FEMST 177B, GERGEN 177B.) The status of Germanic women in Tacitus' *Germania* from 98 C.E. Transformations in the images of women from the 4th century as the conversion to Christianity spread northward, including wicked queens and impeccable saints. Readings from the Merovingian, Carolingian, and Ottonian periods with focus on the 12th-century correspondence of Heloise and Abelard. The Christian encounter with family and legal structure represented in the legends and sagas of Scandinavia. Sources include contemporary literary texts, legal provisions, Church documents, and social institutions. GER:3a,4c  
4 units, Aut (Andersson)

**OSPBER 30. Berlin vor Ort: A Field Trip Module**—The cultures of Berlin as preserved in museums, monuments, and architecture. Berlin's cityscape as a narrative of its history from baroque palaces to vestiges of E. German communism, from 19th-century industrialism to grim edifices of the Sachsenhausen concentration camp. Competing political agendas and the criteria of historical selection in monument alteration and removal, renaming streets, and structuring the capital city. Focus is on the interface between sociopolitical life and artistic expression. In German. (AU)  
1 unit, Aut, Win, Spr (Neckenig)

**OSPBER 32. Film and Propaganda: Soviet and German Films of the 30s**—(Enroll in SLAVGEN 153X.) The meaning of propaganda and its use in left- and right-wing dictatorial regimes through films including Riefenstahl's *The Triumph of the Will*, Vertov's *Three Songs of Lenin*, Chiaureli's *The Fall of Berlin*, Harlan's *Jew Suss* and Eisenstein's *Alexander Nevsky*. Themes and archetypes; images of leader, masses, hero, enemy, and gender; deployments of historical parallels; personalization of ideological messages; and canons of representation. GER:3a  
3-4 units, Aut (Bulgakowa)

**OSPBER 37. Web Projects**—Plan and develop a multimedia web project based on academic work associated with a concurrent course. Prerequisite: knowledge of web design or preparation on home campus.  
1 unit, Aut, Win, Spr (Kramer)

**OSPBER 38. Research Module**—For continuing students. Research under the guidance of a local specialist in libraries, archives, research institutes, and/or in the field. Prerequisite: GERGEN 177A.  
3-4 units, Spr (Kramer)

**OSPBER 60. German Film and the Berlin Film Festival**—(Enroll in DRAMA 158M.) Significant German films (1919-1980), and new films screened at the Berlin Film Festival. Students receive passes to the festival. GER:3a  
4 units, Win (Rehm)

**OSPBER 61. Opera in Berlin**—(Enroll in DRAMA 158W.) Operas staged during the quarter at the three great opera houses: Staatsoper, Komischer Oper, and Deutsch Oper. Comparison study of interpretations of same opera staged at different houses. Secondary readings. Focus is on the intellectual and aesthetic richness represented by the form. GER:3a  
4 units, Win (Rehm)

**OSPBER 64. Film and Writing**—(Enroll in ARTHIST 162Y.) German culture through film. Sensitivity for film structure through creative writing tutorials and screening workshops. Composition and narrative structure (storyline, suspense, character development). Screen-writing exercises. GER:3a  
3-4 units, Spr (Maerker)

**OSPBER 93. Globalization: International Challenges, Regional Responses**—(Enroll in POLISCI 110X.) The rigid system of the Cold War was replaced by the flexible, almost anarchic system of globalization. Post-cold war political and economical upheaval triggered large migrations. In the age of multinational corporations, many predict the end of the national state in the context of a single superpower without adequately powerful, independent, and compensating institutions. Negative consequences of the dynamic process of globalization are often accredited to the superpower. GER:3b  
4-5 units, Spr (Tempel)

**OSPBER 101A. Contemporary Theater**—(Enroll in GERLIT 195, DRAMA 101A.) Texts of plays are supplemented by the theoretical writings of the respective playwrights and background reading in theater history and theory. Weekly theater trips, a tour of backstage facilities, attendance at a rehearsal, and discussions with actors, directors, or other theater professionals. In German. GER:3a  
5 units, Aut (Kramer)

**OSPBER 105V. Industry, Technology, and Culture, 1780-1945**—(Enroll in HISTORY 105V, STS 120V.) From the steam engine to the modern factory, the engineer emerges as the hero of the innovative and the new in the modern world. The dialectical relationships among material, intellectual, and social culture using the example of modern materials, transport, and communications systems, the micro- and macrocosms discovered in physics, chemistry, and astronomy, and the revolutionizing influence of photography, film, and TV. GER:3a  
4 units, Win (Neckenig)

**OSPBER 110Y. Architecture and the City, 1871-1990: Berlin as a Nucleus of Modernity**—(Enroll in ARTHIST 110Y, HISTORY 229V, STS 119V, URBANST 143U.) Differing logics of reconstruction in the two competing postwar German states. Architectural corrections attempted in post-Communist East Berlin and the rebuilding of the national capital since 1990. Dual perspective of the major architectural movements of the century and reconstruction of shifting roles of Berlin during unifications of 1871 and 1990. GER:3a  
4 units, Spr (Neckenig)

**OSPBER 114X. The European Union: Superpower in the Making?**—(Enroll in POLISCI 110P.) The single European currency, the Kosovo war, and initiatives for a common foreign and security policy (CFSP) challenge the EU to define its new role in the world. Topics: eastward enlargement, bilateral relationship with the U.S., Turkey, the Mediterranean area, and the future international role of the euro. The ability of the EU to become a global actor in security and economic affairs. GER:3b  
4-5 units, Win (Brückner)

**OSPBER 115X. The German Economy: Past and Present**—(Enroll in ECON 115X, POLISCI 111P.) The history of the German economy in: the Wilhelmine Empire, the Weimar Republic, the Third Reich, the postwar real socialism of the GDR, and the free market economy of the FRG. The processes of economic transition since unification and the current challenges faced by united Germany as Europe's first economic power and the world's second largest export nation. GER:3b  
4-5 units, Aut (Klein)

**OSPBER 117V. The Industrial Revolution and its Impact on Art, Architecture, and Theory**—(Enroll in STS 117V, ARTHIST 141Y.) The interlinking of architecture and painting with technological and scientific development. In a period of industrial revolution, the dominance of positivist thinking and empirical methods promotes in the cultural and artistic realm a response of euphoric acceptance or emphatic rejection. Artwork as a social, cultural, and spiritual symbol is a response to scientific and technological development, yet claims timeless validity. Topics: frictions between idealism and realism, photography and painting, historicism and functionalism, expression and dadaism, futurism and new sobriety, functionalism and Nazi classicism. GER:3a  
5 units, Aut (Neckenig)

**OSPBER 126X. A People's Union? Money, Markets, and Identity in the EU**—(Enroll in POLISCI 112P.) First of two quarter sequence. The changes in the European Union from a loose economic club for internal trade to a powerful regulatory center with a wide scope of competencies. How this process will change the European style of welfare states and create a new political system and a new type of EU citizenship. The future role of Germany in the EU. Field trips and guest speakers. GER:3b  
4-5 units, Aut (Brückner)

**OSPBER 161X. The German Economy in the Age of Globalization**—(Enroll in ECON 161X.) Germany's role in the world economy: trade, international financial markets, position within the European Union; economic relations with Eastern Europe, Russia, the Third World, and the U.S. International aspects of the economic and environmental policies of the Red-Green Coalition Government. The globalization of the world's economy and Germany's competitiveness as a location for production, services, and R&D, focusing on the German car industry. GER:3b  
4-5 units, Win (Klein)

**OSPBER 174. Sports, Culture, and Gender in Comparative Perspective**—(Enroll in GERGEN 174.) Introduction to the theory and history of mass spectator sports and their role in modern societies. Comparisons with U.S., Britain, and France; the peculiarities of sports in German culture. Body and competition cultures, with emphasis on the entry of women into sports, the modification of body ideals, and the formation and negotiation of gender identities in and through sports. The relationship between sports and politics, including an analysis of the 1936 Berlin Olympic Games. GER:3b,4c  
5 units, Spr (Junghanns)

**OSPBER 177A. Culture and Politics in Modern Germany**—(Enroll in GERGEN 177A.) Key paradigms of modern Germany: German romanticism, the belated state and national identity, National Socialism and the Holocaust, Germany divided and unified. Literary, analytical, and theoretical texts; newspaper articles; film and TV; oral history. GER:3b  
4-5 units, Win (Kramer)

## GERMAN LANGUAGE PROGRAM

**OSPBER 1Z. Accelerated German: First and Second Quarters**—(Enroll in GERLANG 1Z.) GERLANG 1 and 2 in one quarter, enabling students with no prior German to study at the Berlin Center.  
8 units, Aut, Win (Wohlfel)

**OSPBER 3B. German Language and Culture**—(Enroll in GERLANG 3B.) Grammar, composition, and conversation. Increases fluency in German as rapidly as possible to help students take advantage of the many opportunities in Berlin. Corequisite: GERLANG 100B.  
5 units, Aut, Win, Spr (Biege)

**OSPBER 22B. Berliner Geschichte(n): Second-Year German**—(Enroll in GERLANG 22B.) Readings in history, literature, politics, and economics.  
5 units, Aut, Win, Spr (Friesel-Kopecki)

**OSPBER 100B. Aktives Deutsch**—(Enroll in GERLANG 100B.) Required for students enrolled in GERLANG 3B; open to students in other German language classes. Active use of German, including vocabulary from many fields and disciplines, and discussion of current issues.  
2 units, Aut, Win, Spr (Herzog)

## ON VIDEOTAPE

See the "School of Engineering" section of this bulletin for course descriptions.

**OSPBER 40B. Introductory Electronics**—(Enroll in ENGR 40B.) GER:2b  
5 units, Aut, Win, Spr (Khuri-Yakub)

**OSPBER 50B. Introductory Science of Materials**—(Enroll in ENGR 50B.) GER:2b  
4 units, Aut, Win, Spr (Bravman)

## FLORENCE

**OSPFLOR 41. The Contemporary Art Scene in Tuscany: Theory and Practice**—(Enroll in ARTSTUDI 147Y.) The ever-changing and multifaceted scene of contemporary art through visual and sensorial stimulation. How art is thought of and produced in Italy today. Hands-on experience. Sketching and exercises on-site at museums and exhibits, plus workshops on techniques. GER:3a  
3-5 units, Aut (Rossi)

**OSPFLOR 42. Academic Internship**—Mentored internships are offered in banking, education, the fine arts, health, media, not-for-profit organizations, publishing, and retail.  
1-5 units, Win, Spr (Campani)

**OSPFLOR 49. The Cinema Goes to War: Fascism and World War II as Represented in Italian and European Cinema**—(Enroll in ITALGEN 191F, ARTHIST 160Y, HISTORY 235V, COMM 53.) Filmic portrayals of Fascism and WW II through analysis of the structural and ideological attributes of narrative cinema, and theories of visual and cinematic representation. The ways film directors have translated history into stories, and war journals into visual images. Topics: the role of fascism in the development of Italian cinema and its phenomenology in film texts; cinema as a way of producing and reproducing constructions of history; film narratives as fictive metaphors of Italian cultural identity; film image, ideology, and politics of style. GER:3a  
5 units, Win (Campani)

**OSPFLOR 54. High Renaissance and Maniera**—(Enroll in ITALGEN 150F, ARTHIST 112Y.) The development of 15th- and early 16th-century art in Florence and Rome. Epochal changes in the art of Michelangelo and Raphael in the service of Pope Julius II. The impact of Roman High Renaissance art on masters such as Fra' Bartolomeo and Andrea del Sarto. The tragic circumstances surrounding the early maniera: Pontormo and Rosso Fiorentino and the transformation of early Mannerism into the elegant style of the Medicean court. Contemporary developments in Venice. GER:3a  
5 units, Spr (Verdon)

**OSPFLOR 55. Academy of Fine Arts: Studio Art**—(Enroll in ARTSTUDI 198F.) Courses through the *Accademia delle Belle Arti*. Course details upon arrival. Minimum Autumn and Winter Quarter enrollment required; 1-3 units in Autumn.

*1-5 units, Aut, Win, Spr (Staff)*

**OSPFLOR 57. History and Culture of Jews in Italy**—(Enroll in HISTORY 188V.) Panoramic picture of the history of Italian Jews and their millenarian cultural history. Story of the main Jewish communities in Italy, past and present, gives a geographical, historical, and cultural perspective of present day's Italian Judaism. Different historical periods of Italian Jewry and their connection with Italian European history from ancient times to the present. Main cultural currents of Italian Jewish history; present-day Jewish Italian identity. GER:3a

*4 units, Win (Levi)*

**OSPFLOR 67. Women in Italian Cinema: Maternity, Sexuality, and the Image**—(Enroll in ITALGEN 135F, FEMST 135F.) Film in the social construction of gender through the representation of the feminine, the female, and women. Female subjects, gaze, and identity through a historical, technical, and narrative frame. Emphasis is on gender, identity, and sexuality with references to feminist film theory from the early 70s to current methodologies based on semiotics, psychoanalysis, and cultural studies. Advantages and limitations of methods for textual analysis and the theories which inform them. Primarily in Italian. GER:3a,4c

*4 units, Spr (Campani)*

**OSPFLOR 71. Becoming an Artist in Florence: Contemporary Art in Tuscany and New Tendencies in the Visual Future**—(Enroll in ARTSTUDI 141Y.) Recent trends in art, current Italian artistic production, differences and the dialogue among visual arts. Events, schools, and movements of the 20th century. Theoretical background and practical training in various media. Work at the Stanford Center and on-site at museums, exhibits, and out in the city armed with a sketchbook and camera. Emphasis is on the importance of drawing as the key to the visual arts. Three workshops enable students to master the techniques introduced. GER:3a

*3-5 units, Spr (Rossi)*

**OSPFLOR 78. An Extraordinary Experiment: Politics and Policies of the New European Union**—(Enroll in POLISCI 42P.) Institutional design of EU, forthcoming changes, and comparison of the old and new designs. Interactions between the EU, member states, organized interests, and public opinion. Major policies of the EU that affect economics such as competition or cohesion policies, market deregulation, and single currency. Consequences of the expansion eastwards. The role of institutions as a set of constraints and opportunities for the economic actors; relationships between political developments and economic change in the context of regional integration; lessons for other parts of the world. GER:3b

*5 units, Aut (Morlino)*

**OSPFLOR 79. Migrations and Migrants: The Sociology of a New Phenomenon**—(Enroll in SOC 114S.) Interdisciplinary approach to the study of immigration. Typology of forms of migration through politics put into action by the EU and within single nations. Related cultural and religious questions which elicit symbolic borders, territorialization of cultural identities, and the often spatial differentiation of immigrants and locals. The politics of integration and the instruments necessary to manage it. GER:3b,4a

*5 units, Spr (Allam)*

**OSPFLOR 80. Contemporary Italian Politics: The Berlusconi Era**—(Enroll in POLISCI 142P.) Changes in Italian politics since the 2001 election when a new strong parliamentary majority gave the new prime minister, Silvio Berlusconi, the possibility of implementing new domestic and foreign policies that changed the content of Italian democracy. The main features of the crisis, the changes, and the Berlusconi era in comparative perspective. GER:3b

*5 units, Win (Morlino)*

**OSPFLOR 83. Materials and Machines for Architecture: The Renaissance from Brunelleschi to Michelangelo**—(Enroll in URBANST 183U.) Renaissance architecture in 15th-century Florence developed with the help of fortunate political, economic, social, and cultural circumstances, and scientific and technological components. The technical building aspects and materials on which the planning and construction of architecture is founded. Emphasis is on Florentine Renaissance architecture from the Cupola of the Cathedral to the Santa Trinita Bridge. The traces of history in building planning and architecture. GER:3b

*4 units, Aut (Lamberini)*

**OSPFLOR 84. Democratic Quality in the Contemporary World**—(Enroll in POLISCI 43P.) Theoretical framework for the notion of democratic quality, and a qualitative and quantitative assessment of the actual implementation of democracy and human rights at a worldwide level. Main theoretical notions related to democratic quality including rule of law, accountability, responsiveness, freedom, and equality. Tools for subversion, how political elites developed different modes to avoid responsibility and responsiveness in political activities. Case studies such as the post-communist countries or the Arab world, including assessment of democracy in the area. Assessment of American democracy. GER:3b

*5 units, Spr (Morlino)*

**OSPFLOR 87. Schooling and Child Social Policy in Italy**—Education and welfare policy in Italy and its effects on children, using the tools of economics. Topics include: early childhood intervention, aid to families, abandoned children, school resources, teacher labor markets, school choice, and accountability. Comparison of Italian policy with policies in the rest of Europe and in the U.S. with emphasis on incentives by policy initiatives. GER:3b

*3 units, Aut (Loeb)*

**OSPFLOR 88. Exploratory Data Analysis**—(Enroll in ECON 79X.) Quantitative data analysis with focus on descriptive statistics. Trends in International Mathematics and Science Study data on Italian principals, teachers, and students. Comparative study of Italy and other countries. Statistical programming in Stata, research problem definition, analysis design, graphing, variable distributions and transformations, bivariate relationships, statistical testing, and presentation of research results.

*3 units, Aut (Loeb)*

**OSPFLOR 89. In the Footsteps of Freud in Florence**—(Enroll in HPS 104V.) Freud's encounter with Florence, and its lasting effects on his writings, theories, and psychoanalysis. Reconstruction through documentary materials of his concrete and symbolic Florentine itinerary, including the staircase to Mons Florentinum, the walls of San Miniato a Monte, and the Torre del Gallo. GER:3b

*4 units, Aut (Pallanti)*

**OSPFLOR 90. Machiavelli**—(Enroll in HISTORY 189V, POLISCI 249P.) His life and politics. Readings include *The Prince* and *Discourses on Livy* in translation and Italian, and biographies, essays, and criticism. Different ways in which historians and political theorists read the same text, depending on the importance they ascribe to the context in which the text was produced or the internal logic of its argument. GER:3b

*4-5 units, Win (Rakove)*

**OSPFLOR 91. Citizenship and Constitutionalism in Contemporary Europe**—(Enroll in HISTORY 80V, POLISCI 248P.) Topics include the internationalization of rights, the role of constitutional courts, and efforts to convert the treaties adopted since WW II into a European constitution. Focus is on Italian issues and materials. GER:3b

*4-5 units, Win (Rakove)*

**OSPFLOR 94. Photography in Florence**—(Enroll in ARTSTUDI 70Y.) Introduction to the functioning of the camera, exposure, and b/w film processing and printing. Emphasis is on perceptive imagery and the development of technical proficiency. 35mm camera required. Limited enrollment.

*4 units, Win (Loverme)*

**OSPFLOR 95. The Art of Engineering and the Engineering of Art in Early Renaissance Italy**—(Enroll in ME 122F.) Innovations in technology that accompanied and made possible the proliferation of monumental art and architecture in the late 1400s. Examples include machines designed by Brunelleschi and da Vinci, novel construction and fresco techniques, and bronze casting advances. The social and political climate that made possible and demanded engineering expertise from prominent artists. GER:2b

*3 units, Spr (Cutkosky)*

**OSPFLOR 96. Design for Wellbeing in 21st-Century Tuscany**—(Enroll in ME 123F.) Efforts to improve the quality of life for the elderly and disabled in Central Tuscany, an area that may soon have the largest elderly population in Europe. Communities and assistive technologies that allow seniors to remain independent while preserving the Tuscan ambience and lifestyle. Scientific, cultural, and technological challenges.

*3 units, Spr (Cutkosky)*

**OSPFLOR 97. Current Issues in Human Rights and International Justice**—Roosevelt's four freedoms, problematic notions of human rights, concept of fair trial, the forthcoming U.S. Supreme Court decision on Guantanamo detainees, current international protection against torture and rape. Is current international protection satisfactory? Did victors' justice at Nuremberg serve any purpose? Is a jury necessary to establish guilt or innocence? What is genocide? How should post-conflict situations be handled? Why is the U.S. opposing the International Criminal Court? GER:3b

*4 units, Win (Cassese)*

**OSPFLOR 106V. Italy: from an Agrarian to a Post-industrial Society**—(Enroll in HISTORY 106V, POLISCI 145P.) Italian history from the Risorgimento to the present. Italian society, crises, evolution, values, and the relation to the political institutions existing in different periods. The ideologies, political doctrines, and historical events which contributed to the formation of modern Italy's predominant subcultures, Catholic and Socialist. In Italian. GER:3b

*4 units, Aut (Mammarella)*

**OSPFLOR 111Y. From Giotto to Michelangelo: Introduction to the Renaissance in Florence**—(Enroll in ARTHIST 111Y.) Lectures, site visits, and readings reconstruct the circumstances that favored the flowering of architecture, sculpture, and painting in Florence and Italy, late 13th to early 16th century. Emphasis is on the classical roots; the particular relationship with nature; the commitment to human expressiveness; and rootedness in the real-world experience, translated in sculpture and painting as powerful plasticity, perspective space, and interest in movement and emotion. GER:3a

*4 units, Win (Verdon)*

**OSPFLOR 115Y. The Duomo and Palazzo della Signoria: Symbols of a Civilization**—(Enroll in ARTHIST 115Y.) The history, history of art, and symbolism of the two principal monuments of Florence: the cathedral and the town hall. Lectures, site visits, and readings grasp the points of common meaning and ideological difference between the religious and civic symbols of Florence's history from the time of Giotto and the first Guelf republic to Bronzino and Giovanni da Bologna and the Grand Duchy. GER:3a

*4 units, Aut (Verdon)*

**OSPFLOR 134F. Modernist Italian Cinema**—(Enroll in ITALGEN 134F, ARTHIST 161Y, STS 125.) As the embodiment of modernity, cinema develops in the wake of modernism proper, but can be understood as one of its technological and aesthetic expressions. Topics: cinema's archaeology in Futurist texts and theories with their nationalistic political flavor and their iconoclastic, radical, and interdisciplinary rethinking of the language and form of all the arts (Marinetti, Pirandello, D'Annunzio). GER:3a

*5 units, Aut (Campani)*

## ITALIAN LANGUAGE PROGRAM

**OSPFLOR 35. Second-Year Italian, First Quarter**—(Enroll in ITALLANG 21F.) Review of grammatical structures; grammar in its communicative context. Listening, speaking, reading, and writing skills practiced and developed through authentic material such as songs, newspaper articles, video clips, and literature. Insight into the Italian culture and crosscultural understanding.

*4 units, Aut, Win, Spr (Quercioli)*

**OSPFLOR 37. Second-Year Italian, Second Quarter**—(Enroll in ITALLANG 22F.) Grammatical structures, listening, reading, writing, speaking skills, and insight into the Italian culture through authentic materials. Intermediate to advanced grammar. Content-based course, using songs, video, and literature, to provide cultural background for academic courses including the WWII Project.

*4 units, Win (Quercioli)*

**OSPFLOR 66. Advanced Italian Conversation**—(Enroll in ITALLANG 31F.)

*4 units, Aut, Win, Spr (Quercioli)*

## ON VIDEOTAPE

See the "School of Engineering" section of this bulletin for course descriptions.

**OSPFLOR 50F. Introductory Science of Materials**—(Enroll in ENGR 50F.) GER:2b

*4 units, Aut, Win, Spr (Bravman)*

## KYOTO

The Stanford Japan Center in Kyoto houses two separate academic programs: the Kyoto Center for Japanese Studies (KCJS) and the Stanford Center for Technology and Innovation (SCTI). KCJS is administered by Stanford for a consortium of American universities. For current information on KCJS, consult the web site at <http://kcjs.stanford.edu/> or contact Overseas Studies for a brochure. The courses listed below are offered by the SCTI program.

**OSPKYOTO 16. Undergraduate Seminar on Medical Imaging Systems**—(Enroll in EE 69.)

*3 units, Spr (Nishimura)*

**OSPKYOTO 17R. Religion and Japanese Culture**—(Enroll in RELIGST 17R.) The importance of religion in Japanese culture, and its major traditions. Visits to religious centers for observation of current religious practices and participation as appropriate. Topics: the relation between religion and culture; ancient Japanese religion and Shinto; Buddhist schools of Heian Japan; Zen Buddhism as it flourished in the Kamakura period; Confucianism as originally conceived in ancient China, and as transmitted to Japan in the Edo period in its neo-Confucian form; and characteristic modern practices. GER:3a,4a

*4-5 units, Spr (Ludvik)*

**OSPKYOTO 21. Research Project**—Independent research projects on significant aspects of Japanese culture, society, or public policy. Students interested in developing the project as a web page should take a home campus class on creating web pages or have equivalent experience.

*2-3 units, Spr (MacDougall)*

**OSPKYOTO 30. Immigration, Citizenship, and Identity in Japan**—(Enroll in POLISCI 247P.) How Japan is coming to terms with the public policy challenges of asylum, immigration, and integration. The nature of the challenges, obstacles and opportunities for change, and proposals for progress. Lessons of the Western experience, and the difficult trade-offs and conditions with which the Japanese must deal. Opportunities for field research and collaboration with students studying immigration at other centers. GER:3b,4a

*4-5 units, Spr (MacDougall)*

**OSPKYOTO 31. The Fourier Transform and its Applications—**(Enroll in EE 261.) The Fourier transform as a tool for solving physical problems. Fourier series, the Fourier transform of continuous and discrete signals and its properties. The Dirac delta, distributions, and generalized transforms. Convolutions and correlations and applications; probability distributions, sampling theory, filters and analysis of linear systems. The discrete Fourier transform and the FFT algorithm. Multi-dimensional Fourier transform and use in imaging. Further applications to optics, crystallography. Emphasis is on relating the theoretical principles to solving practical engineering and science problems. Prerequisites: previous exposure to Fourier series at the level of 102A, and linear algebra.

*3 units, Spr (Nishimura)*

**OSPKYOTO 32. Circuits II—**(Enroll in EE 101B.) Second of two-course sequence. MOS large-signal and small-signal models. MOS amplifier design including DC bias, small signal performance, multi-stage amplifiers, frequency response, and feedback. Prerequisite: 101A. GER:2b

*4 units, Aut, Spr (Shenoy)*

**OSPKYOTO 33. Digital Systems II—**(Enroll in EE 108B.) The design of processor-based digital systems. Instruction sets, addressing modes, data types. Assembly language programming, low level data structures, introduction to operating systems and compilers. Processor microarchitecture, microprogramming, pipelining. Memory systems and caches. Input/output, interrupts, buses and DMA. System design implementation alternatives, software/hardware tradeoffs. Labs involve the design of processor subsystems and processor-based embedded systems. Prerequisite: 108A, CS 106B. GER:2b

*4 units, Win (Olukotun), Spr (Kozyrakis)*

**OSPKYOTO 215X. The Political Economy of Japan—**(Enroll in ECON 123X, POLISCI 240P.) Institutions and processes in the political organization of economic activity in modern Japan. The interaction of public and private sector institutions in the growth of its postwar economy. The organization and workings of key economic ministries and agencies of the government, private sector business groupings, government interaction, and public policy making. The transformation of industrial policy from the rapid growth of heavy and chemical industries to the promotion of high technology and communications industries. The international, political, and economic ramifications of the structure and importance of Japanese capitalism. GER:3b

*4-5 units, Spr (Hayashi)*

### JAPANESE LANGUAGE PROGRAM

**OSPKYOTO 9K. First-Year Japanese Language, Culture, and Communication B—**(Enroll in JAPANLNG 9K.)

*5 units, Spr (Fujiwara)*

**OSPKYOTO 17K. Second-Year Japanese Language, Culture, and Communication B—**(Enroll in JAPANLNG 17K.)

*5 units, Spr (Uemiya)*

**OSPKYOTO 19K. Second-Year Japanese Language, Culture, and Communication B—**(Enroll in JAPANLNG 19K.)

*5 units, Spr (Yamaoka)*

**OSPKYOTO 103K. Upper Advanced Japanese—**(Enroll in JAPANLNG 103K.)

*5 units, Spr (Yamaoka)*

**OSPKYOTO 127K. Third-Year Japanese Language, Culture, and Communication B—**(Enroll in JAPANLNG 127K.)

*5 units, Spr (Hotta)*

**OSPKYOTO 129K. Third-Year Japanese Language, Culture, and Communication B—**(Enroll in JAPANLNG 129K.)

*5 units, Spr (Hotta)*

### ON VIDEOTAPE

See the "School of Engineering" section of this bulletin for course descriptions.

**OSPKYOTO 40K. Introductory Electronics—**(Enroll in ENGR 40K.) GER:2b

*5 units, Spr (Khuri-Yakub)*

**OSPKYOTO 50K. Introductory Science of Materials—**(Enroll in ENGR 50K.) GER:2b

*4 units, Spr (Bravman)*

### OXFORD

**OSPOXFRD 24. British and American Constitutional Systems in Comparative Perspective—**(Enroll in POLISCI 244P.) Introduction to the study of constitutions and constitutional systems of government. Analysis of the detailed workings of the British and American systems of government. Comparative study of the most important constitutional issues facing Britain and the United States such as how suspected terrorists should be treated in a time of war. How we think about fundamental constitutional questions. GER:3b

*5 units, Spr (McMahon)*

**OSPOXFRD 35. Modern UK and European Government and Politics—**(Enroll in POLISCI 141P.) Background of main political systems in Europe and recent developments in European politics. Topics: Blair's recent constitutional reforms; the consequences of the German reunification; Berlusconi's rise to power in Italy; the recent electoral breakthrough of the extreme right in France; the adoption of the Euro by 11 European states; the enlargement of the EU to the former communist countries of East Central Europe; the writing of a constitution for Europe in the Laeken Convention. GER:3b

*4 units, Aut (Capoccia)*

**OSPOXFRD 40. Economic and Social History of England, 1750-1950—**(Enroll in ECON 117X.) Economic processes and events and how they interrelate to shape social and political processes. Readings include survey articles and detailed analyses. Choice of topics may be adjusted to fit student interests. Student presentations. GER:3b

*3-5 units, Aut (Greif)*

**OSPOXFRD 41. Explorations in England's Premodern Economic, Social, and Political History—**(Enroll in ECON 122X.) The legacies of English industrialization, imperialism, democracy, and the rule of law. To what extent did England's institutions and related economic, social, and political processes lead to these outcomes after 1750. Institutional aspects of English society. Readings include premodern and secondary sources. GER:3b

*3-5 units, Aut (Greif)*

**OSPOXFRD 42. Comparative Health Care Systems: UK and U.S.—**Differences between UK and U.S. health care systems from modern and historical perspectives. Evolution, current problems, future developments. Case of Canada as point of comparison. Attempts to maximize health gains while controlling costs, one system on the public service ideal, the other on market principles. Social, cultural, and ethical issues related to the development of health care systems; opportunities to interact with NHS doctors, nurses, and administrators. GER:3b

*4 units, Spr (Senior)*

**OSPOXFRD 44. The Rise of the Novel—**The many novels that flooded the literary market throughout the 18th century. Male canonical writers such as Richardson and Fielding, and also on those written by women. Topics include satire, sensibility, and the contemporary suspicion of the novel form as morally pernicious. GER:3a

*5 units, Spr (Plaskitt)*

**OSPOXFRD 45. Roots of Modern Biology—**(Enroll in HPS 103V.) Modern developments in human, cell, and molecular biology, and genetics in the context of the development of science in the UK in the 19th and early 20th century. Sources include classic papers and comparisons

to recent papers from biomedical literature. Development of scientific method in biology and medicine. Visits to laboratories and research institutes in Oxford, Cambridge, and London, and discussions with British scientists. GER:3b

4 units, Win (*Hintz*)

**OSPOXFRD 46. Workshop on Health Care Systems**—Health care delivery in Europe, including the UK, Sweden, France, Italy, and Germany, compared to pluralistic system in the U.S. Emphasis is on the British system. Discussions with doctors, visits to hospitals and clinics in the Oxford area, and interaction with British health care workers. GER:3b

3 units, Win (*Hintz*)

**OSPOXFRD 47. Drama: Ancient and Modern**—(Enroll in ENGLISH 140Z.) Introduction to the influences of the Greeks, Elizabethans, and moderns such as Ibsen, Strindberg, Chekhov on contemporary drama in England and the U.S. Weekly trips to London theater to develop the historical and generic sense of drama. What happens between script and production. GER:3a

5 units, Spr (*L'Heureux*)

**OSPOXFRD 70. The European City**—(Enroll in HISTORY 138V.) Population growth, technological change, and revolutionary social and architectural ideologies have transformed European cities. How and why the transformation occurred through key texts and the physical fabric of the cities. Topics: effects of Baroque patronage in the 17th and 18th centuries; rebuilding the city centers in the 19th century, the growth of suburbs; the impact of mass transportation; the influence of modernist doctrines in the 20th century; ongoing attempts by governments to tackle endemic problems of slums, poverty. Comparisons with U.S. cities. GER:3b

5 units, Spr (*Tyack*)

**OSPOXFRD 80. Britain in the Twentieth Century**—(Enroll in HISTORY 145V.) Political development, the evolution of urban society and Britain's changing worldwide role. Topics: the impact of mass democracy, the effects of the two World Wars, the development of the welfare state, and recent challenges to the post-war consensus. Themes are a background against changing social relationships, standards of living, and popular culture. GER:3b

5 units, Win (*Tyack*)

**OSPOXFRD 93. Archaeology of the British Isles**—(Enroll in HISTORY 142V.) Relationship between human beings and their habitat in Britain from the Iron Age to the 15th century. Physical geography; changes in social and political organization as seen through archaeological record. Religion and ritual, emphasizing attitudes to death. The nature of archaeological evidence, the adoption of literacy, and links between archaeology and history. GER:3b

3 units, Win (*Rowley*)

**OSPOXFRD 98. Creative Writing Workshop**

3 units, Aut, Win, Spr (*Kidd*)

**OSPOXFRD 114Z. Renaissance Literature, 1509-1642**—(Enroll in ENGLISH 114Z.) Open only to students majoring in English and related subjects. Taught jointly for Stanford students and second-year St. Catherine's undergraduates. English literature from the beginning of Henry VIII's reign to the onset of the Civil War, excluding Shakespeare. The poetry, prose, and drama of the period in their literary, cultural, and historical contexts. GER:3a

5 units, Aut (*Wordsworth*)

**OSPOXFRD 116Z. Restoration Literature, 1642-1740**—(Enroll in ENGLISH 116Z.) Open only to students majoring in English and related subjects. Taught jointly for Stanford students and second-year St. Catherine's undergraduates. English literature from the Civil War to the middle of the 18th century. The poetry, prose, and drama of the period in their literary, cultural, and historical contexts, and key texts. English major Area:E. GER:3a

5 units, Win (*Wordsworth*)

**OSPOXFRD 117W. Gender and Social Change in Modern Britain**—(Enroll in SOC 117W.) Changes in the social institutions, attitudes, and values in Britain over the past 20 years. Social changes occurring as a consequence of the Thatcher years of government. Changes to the British economy, the welfare state, National Health Service, the education system, the criminal justice system, gender relations, marriage, divorce, reproduction, and the family. The consequences in terms of British competitiveness, income distribution, wealth and poverty, social class, health and illness, educational attainment and skills development, crime, and family life. GER:3b,4c

4 units, Aut (*Palmer*)

**OSPOXFRD 141V. European Imperialism and the Third World, 1870-1970**—(Enroll in HISTORY 141V, POLISCI 148P.) European imperialism from its zenith in the late 19th century to the era of decolonization after WW II. The effects of Western imperialism in the Third World. The legacy of imperialism and decolonization to the modern world. GER:3b

5 units, Spr (*Darwin*)

**OSPOXFRD 154Z. Romantic Literature, 1740-1832**—(Enroll in ENGLISH 154Z.) Restricted to students majoring in English and related subjects. Taught jointly for Stanford and second-year St. Catherine's undergraduates. Romantic texts beginning with Willima Collins and Thomas Gray and concluding with John Keats. GER:3a

5 units, Spr (*Plaskitt*)

**OSPOXFRD 163X. Shakespeare: The Early Plays**—(Enroll in ENGLISH 163X.) First of two courses on Shakespeare's dramatic oeuvre. Emphasis is on sources, historical context, dramatic content, and use of language. Plays include: *The Comedy of Errors*, *Loves Labour's Lost*, *A Midsummer Night's Dream*, *The Merchant of Venice*, *As You Like It*, *Twelfth Night*, and *Much Ado About Nothing*. Limited enrollment; preference to students majoring in English, Drama, and related subjects. Taught jointly for Stanford and second-year St. Catherine's undergraduates reading English Literature. GER:3a

5 units, Aut (*Wordsworth*)

**OSPOXFRD 163Z. Shakespeare: The Late Plays**—(Enroll in ENGLISH 163Z.) Second of two courses on Shakespeare's dramatic oeuvre. Emphasis is on sources, historical context, dramatic content, and use of language. Plays include: *Pericles*, *Cymbeline*, *Winter's Tale*, *The Tempest*, *Measure for Measure*, *Troilus and Cressida*, and *All's Well that Ends Well*. Limited enrollment; preference to students majoring in English, Drama, and related subjects. Taught jointly for Stanford and second-year St. Catherine's undergraduates reading English Literature. GER:3a

5 units, Win (*Wordsworth*)

**OSPOXFRD 166X. The Modern British Economy**—(Enroll in ECON 166X.) The nature of the modern British economy. Recent deployments in the main areas of the British economy, emphasizing the changes over the past 10 to 20 years. Sufficient economic concepts are introduced to allow students with basic economic knowledge to take part in the analysis of recent trends. Comparisons with other European countries and the U.S. Prerequisite: ECON 1. GER:3b

5 units, Win (*Robinson*)

**OSPOXFRD 221Y. Art and Society in Britain**—(Enroll in ARTHIST 221Y, HISTORY 244V.) Themes in 18th-, 19th-, and 20th-century British art. Painting, sculpture, and design. Comparisons between the British experience and that of continental Europe and the U.S. Readings address problems related to the role of art in modern society. GER:3a

5 units, Aut (*Tyack*)

## PARIS

**OSPPARIS 25. Literature and the City**—(Enroll in FRENLIT 178F.) Subtle and hidden aspects of Paris through the eyes of France's greatest writers, poets, and philosophers including Balzac, Baudelaire, Zola, and Aragon. Essays, poems, and novels that portray the historical, social, and political reality of the city better than textbooks or guides. GER:3a

4 units, Aut (*Dupas*)

**OSPPARIS 30. Statistical Thinking**—(Enroll in STATS 30.) Origins of probabilistic reasoning and its rapid development by French scientists during the 18th and 19th centuries. Games of chance and Bernoulli's binomial probabilities, Laplace's rules of statistical inference, Poisson's probability models for rare events, and Gauss's laws for measurement errors and the bell-shaped curve. Original sources and modern interpretations. GER:2c

3 units, Aut (*Switzer*)

**OSPPARIS 41. EAP: Perspective, Interior Decorating, Volume, and Design**—(Enroll in ARTSTUDI 61Y.)

2 units, Aut, Win, Spr (*Staff*)

**OSPPARIS 42. EAP: Drawing with Live Models**—(Enroll in ARTSTUDI 140Y.)

2 units, Aut, Win, Spr (*Staff*)

**OSPPARIS 43. EAP: Painting and Use of Color**—(Enroll in ARTSTUDI 144Y.)

2 units, Aut, Win, Spr (*Staff*)

**OSPPARIS 44. EAP: Graphic Art**—(Enroll in ARTSTUDI 60Y.)

2 units, Aut, Win, Spr (*Staff*)

**OSPPARIS 56. Theater in Transition: Stage and Audience in France Today**—(Enroll in FRENLIT 143P.) The spectator, even static and silent, is the first partner of the stage and sometimes the co-creator of the theatrical event. Audience; new forms of performance; how space is reinvented; new light and sound effects; how texts are re-interpreted; and the changing role of the actor on the stage. GER:3a

4 units, Spr (*Mervant-Roux*)

**OSPPARIS 57. Human Rights in Comparative Perspective**—(Enroll in POLISCI 143P.) Human rights spring from Enlightenment principles but their status in the American and French constitutions differ. Have European court decisions created a transatlantic human rights model giving more weight to Anglo-Saxon legal tradition? Philosophical, historical, and legal resources; recent case studies from both sides of the Atlantic. GER:3b

4-5 units, Spr (*Remy-Granger*)

**OSPPARIS 61. Paris by Numbers**—(Enroll in STATS 99.) Parisian demographic trends over the past 100 years. Small teams assemble, condense, interpret, and critique statistical sources of demographic change. Sample surveys as a means of learning about present-day Paris, including a review of principles and pitfalls of survey design; design and execute small-scale surveys combining appreciation of practical limitations in the Parisian environment and direct contact with Parisian respondents. GER:2c

3 units, Aut (*Switzer*)

**OSPPARIS 63. Postwar European Art**—(Enroll in ARTHIST 179Y.) Major figures, movements, themes, and issues in France, Germany, Italy, and England from 1945 to the present. Political and aesthetic status of the avant garde; socially engaged or critical art. Yves Klein and Le Nouveau Réalistes; Jean Tinguely and kinetic art; The Independent Group in England; Tachisme and Art Informel; Arte Povera, Joseph Beuys, and the Dusseldorf Academy; COBRA and l'Internationale Situationiste; Daniel Buren and the critique of institution. Rise of mass media; ethics of historical memory; engaged or committed art; art and the culture industry; art of 1968; reactions to American hegemony. GER:3a

5 units, Win (*Lee*)

**OSPPARIS 64. Paris of the Surrealists**—(Enroll in ARTHIST 129Y.)

The French surrealist movement through museum visits and exploration of Paris and its environs. Paris as the formative site of the Surrealist imagination. Paris's collections of modern art visits to haunts of the Surrealists and locales treated in their work. Surrealist principles including the marvelous and the uncanny as embodied in the fabric of the city. Readings include history of art and primary texts. GER:3a

5 units, Win (*Lee*)

**OSPPARIS 65. Franco-Arab Encounters**—(Enroll in HISTORY 140V.) Encounters between France and the Arab world since the French Revolution and the Napoleonic expedition to Egypt in 1798 seen as inaugurating a relationship whose elements include the French cultural model as the standard of modernity and culture in the Arab world. French colonial presence in Algeria. How the settling of Arab Muslims in France has brought the empire home to France to live on in a new form. GER:3a

5 units, Spr (*Beinin*)

**OSPPARIS 81. France During the Second World War: Between History and Memory**—(Enroll in HISTORY 139V.) French politics and society from the causes of the collapse of the French Third Republic and the emergence of the French State at Vichy. The political and cultural measures of this regime in the shadow of Nazi Germany. Anti-Jewish laws and action; deportations by Vichy, the Germans, the French Fascists, and reactions to the fate of the Jews. Visions of the Resistance, the combat for liberation, and WW II in the collective memory of France. GER:3b

5 units, Win (*Virgili*)

**OSPPARIS 87. Empires and Cultures in the Modern World**—(Enroll in HISTORY 87V.) The formation of modern European empires and their expansion into Asia, Africa, and the Middle East. Topics: cultural encounters, military conquest, economic integration, the new imperialism, colonialism, nationalism, the mutual constitution of colonial power and forms of knowledge, and the culture and politics of the postcolonial world. Readings: historical texts, films, and novels. GER:3a,4a

5 units, Spr (*Beinin*)

**OSPPARIS 91. Globalization and Its Effect on France and the European Union**—(Enroll in ECON 125X.) Economic and political impact of globalization on France and the EU and influence of France and the EU on the process of globalization. Issues of sovereignty and national identity for France; protection from versus integration into the network of globalization. GER:3b

5 units, Spr (*Germanangue*)

**OSPPARIS 107Y. The Age of Cathedrals: Religious Art and Architecture in Medieval France**—(Enroll in ARTHIST 107Y.) Artistic and cultural movements that changed France from the period of Suger in the 12th century through the reign of St. Louis in the 13th century. Monastic spirituality progressively gave way to an urban culture focused on man and secular knowledge, which developed daring and sophisticated building techniques. The years 1150-1250 represented a period of architectural renaissance and l'Ile-de-France was its birthplace. GER:3a

4 units, Aut (*Deremble*)

**OSPPARIS 120X. French Painting**—(Enroll in ARTHIST 123Y.) Changes in artistic aims and the interaction between artist and society throughout the period. Weekly field trips to Paris museums holding paintings of David, Ingres, Delacroix, Courbet, Daumier, Manet, Renoir, Monet, Degas, and others. (In French and English) GER:3a

4 units, Win (*Halevi*)

**OSPPARIS 122X. Europe: Integration and Disintegration of States, Politics, and Civil Societies**—(Enroll in POLISCI 149P.) European integration is now an economic, social, and political reality. This integration has a history of mutation and a transformation of its very foundation. Topics: the evolution of welfare states, elites, political parties, and systems in Europe; lobbies, trade unions, voluntary associations, social movements, popular protest, citizenship, democracy. GER:3b

4-5 units, Win (*Lazar*)

**OSPPARIS 124X. Building the European Economy: Economic Policies and Challenges Ahead**—(Enroll in ECON 124X.) The main issues and challenges of European economic construction. The European Economic Union at the end of 50s; European industrial, agricultural, social, and monetary economic policies. Topics: wider definitions of Europe, Europe's relations with industrial and developing countries, Europe's challenge in confronting global economic crises. GER:3b

5 units, Aut (*Le Cacheux*)

**OSPPARIS 153X. Health Systems and Health Insurance: France and the U.S., a Comparison across Space and Time**—(Enroll in HUMBIO 153X, PUBLPOL 111.) Health systems and the needs of a given population. What is the role of the state or the free market in the delivery of health care? Focus is on the evolution of the health profession in France and the U.S.; developments in health policy and reform; measures restraining professional autonomy such as prescription guidelines in the French Medical Convention between doctors and the state. Does increasing health expenditure and reduced access to health care mean the end of autonomy for the medical profession? GER:3b

4-5 units, Win (*Grenier-Sennelier*)

**OSPPARIS 186F. Contemporary African Literature in French**—(Enroll in AFRICAAM 186F, FRENLIT 186F.) Focus is on African and diaspora writers, bound together by a common history of slave trade, bondage, colonization, and racism. Their works belong to the past, including oral heritage of proverbs, story tales, and epics, but they are also strikingly contemporary. GER:3a,4a

4 units, Win (*Mangeon*)

**OSPPARIS 211X. Political Attitudes and Behavior in Contemporary France**—(Enroll in POLISCI 241P.) The institutions of the Fifth Republic, the main political forces, and their evolution. Electoral behavior, taking into account other forms of political action such as the demonstrations for the defense of schools (1984) and the *lycée* students (1990), or the protest that followed the desecration of the Jewish cemetery in Carpentras. Attitudes and values are linked to voting choice. (In French and English) GER:3b

4-5 units, Aut (*Mayer, Lavabre*)

## FRENCH LANGUAGE PROGRAM

**OSPPARIS 22P. Intermediate French I**—(Enroll in FRENLANG 22P.)

4 units, Aut, Win, Spr (*Staff*)

**OSPPARIS 23P. Intermediate French II**—(Enroll in FRENLANG 23P.)

4 units, Aut, Win, Spr (*Staff*)

**OSPPARIS 124P. Advanced French I**—(Enroll in FRENLANG 124P.)

4 units, Aut (*Guedon*)

**OSPPARIS 125P. Advanced French II**—(Enroll in FRENLANG 125P.)

4 units, Win, Spr (*Ricci*)

## ON VIDEOTAPE

See the "School of Engineering" section of this bulletin for course descriptions.

**OSPPARIS 40P. Introductory Electronics**—(Enroll in ENGR 40P.) GER:2b

5 units, Aut, Spr (*Khuri-Yakub*)

**OSPPARIS 50P. Introductory Science of Materials**—(Enroll in ENGR 50P.) GER:2b

4 units, Aut, Win, Spr (*Bravman*)

## SANTIAGO

**OSPSANTG 5. Director's Seminar**—Weekly seminar with presentations on current issues and events in Chilean political and cultural life.

2 units, Aut, Win, Spr (*Fuenzalida*)

**OSPSANTG 56. Contemporary Chilean Women Writers**—(Enroll in SPANLIT 155X.) Poems by Nobel Prize Winner Gabriela Mistral. Novels by María Luisa Bombal (*La última niebla*), Carolina Geel (*Cárcel de mujeres*), Marta Brunet (*María Nadie*), Isabel Allende (*La casa de los espíritus*), Pía Barros (*A horcajadas*), and Marcela Serrano (*Para que no me olvides*). How these authors have articulated women's consciousness and experiences and questioned their own world's values from a feminist perspective. GER:3a,4c

3-5 units, Win (*Haro, Paz*)

**OSPSANTG 57. Cinema of the Southern Cone**—(Enroll in SPANLIT 183X.) Films of Argentina, Chile, and Uruguay including María Luisa Bemberg's *Camila*, Tatiana Gaviola's *Mi último hombre*, Gonzalo Justiniano's *Amnesia*, Miguel Littín's *El chacal de Nahueltoro*, Orlando Lubbert's *Taxi para tres*, Hector Olivera's *No habrá más penas ni olvido*, Marcelo Pineyro's *Caballos salvajes*, Luis Puenzo's *La historia oficial*, and Eusebio Subiela's *Hombre mirando al sudeste*. Themes, genres, and styles; history and culture. GER:3a

3 units, Win (*Haro, Paz*)

**OSPSANTG 58. Ethnobotany in Chile: A Land of Extremes**—Overview of the varied natural environments in Chile followed by focus on a particular habitat. Extended field trip to chosen area allowing for study of ecology and ethnobotany of the habitat. Field work, readings, lectures and laboratory activities. GER:3b

5 units, Aut (*Poblete*)

**OSPSANTG 63. The Chilean New Narrative**—(Enroll in SPANLIT 243X.) Since the 90s, the new Chilean narrative has entered a phase of aesthetic and thematic renovation. One of the strongest national literatures from Latin America, it has reached out for new horizons beyond the dictatorship theme, including young women writers exploring personal and societal themes. Writers include Roberto Bolaño, Lina Meruane, Andrea Maturana, Pedro Lemebel, Alberto Fuguet, and Sergio Gómez. GER:3a

3-5 units, Aut (*Ruffinelli*)

**OSPSANTG 64. Comparative Cinema and Latin America**—(Enroll in SPANLIT 118X.) Differences in cultural approaches between Latin American films and their counterparts from the U.S, Africa, Europe, and Asia. Thematic subjects and aesthetics solutions pointing to cultural traits beyond similitudes. Chilean and Latin American culture through films with similar narrative styles and stories. Films include: *Imagen latente*, *Blow Up*, *Johnny cien pesos*, *Dog Day Afternoon*, *La frontera*, *Christ Stopped At Eboli*, *Doña Herlinda y su hijo*, *The Wedding Banquet*, *Un oso rojo*, *True Grit*, and *Le Samurai*. GER:3a

3-5 units, Aut (*Ruffinelli*)

**OSPSANTG 65. Virtual Design and Construction: Visualizing a 50-Year Evolution of the Heart of Santiago**—(Enroll in CEE 143X.) Computer-based models in building design and construction. Virtual design and construction (VDC) is the use of multidisciplinary performance models of design-construction projects, including the product (facilities), work processes, organization of the design-construction-operation team, and economic impact (model of both cost and value of capital investments) in order to support business objectives. Successful participation may allow students a 4-day mini-internship at an A/E/C company over Spring break. Recommended: 241, 242. GER:2b

4 units, Spr (*Kunz*)

**OSPSANTG 66. The Built Environmental History of Chile**—(Enroll in CEE 33X.) Design and use of the built environment from the perspectives of the unusual geography of Chile, the evolving economy of the country, the Spanish and native American cultural heritage of the peoples, and the national political governance. Fields trips include major architectural sites in Santiago, art museums, and an economic center. Descriptions of built environment by writers, artists, and architects. Create simple electronic portfolios. GER:2b

3 units, Spr (*Kunz*)

**OSPSANTG 104X. Modernization and Culture in Latin America**—(Enroll in ANTHSCI 104X, SPANLIT 290Z.) Intellectual and cultural expressions of Latin America against the background of modernization viewed as a constant tension between rationalization and subjectification, change and identity preservation, and the logic of development or economic expansion and the logic of the culture. Readings include Morande, *Cultura y modernización en América Latina* and Sarlo, *Una modernidad periférica*. GER:3a,4a  
5 units, Aut (Subercaseaux)

**OSPSANTG 111. Social Heterogeneity in Latin America**—(Enroll in SPANLIT 164S, SOC 111S.) Latin America is characterized by social heterogeneity and inequality. An interpretation of these phenomena, focusing on the social, ethnic, gender, political, and economic dimensions. Their historical roots and unfolding during the periods of industrialization, the 60s, 70s, and 80s, and the contemporary situation. GER:3b,4c  
5 units, Aut (Valdes)

**OSPSANTG 116X. Modernization and its Discontents: Chilean Politics at the Turn of the Century**—(Enroll in POLISCI 242P.) Chile's strides towards becoming a developed country have engendered high levels of alienation and disaffection among significant sectors of the population. The roots of this apparent paradox of modernization, focusing on newly emerging actors in the Chilean political scene: Mapuche organizations, women's groups, the environmental movement, and new features of the established ones like trade unions and human rights activists. GER:3b  
5 units, Spr (Correa)

**OSPSANTG 119X. The Chilean Economy: History, International Relations, and Development Strategies**—(Enroll in ECON 119X.) The Chilean economy in five stages, taking into account: the international economic position of Chile; internal economic structures closely related to the inherited historical conditions and to the changing international economic position of the country; and the economic strategies prevalent during the period and the concrete development policies conducted by government authorities. GER:3b  
5 units, Spr (Muñoz)

**OSPSANTG 129X. Latin America in the International System**—(Enroll in POLISCI 117P.) Latin America's role in world politics, with emphasis on the history of and models for explaining U.S.-Latin American relations. Latin America's evolving relationship in the international system. GER:3b  
4-5 units, Win (Fuentes)

**OSPSANTG 130X. Latin American Economies in Transition**—(Enroll in ECON 165X.) Introduction to the main debates and approaches developed to understand and analyze the economies of Latin America.

Recent processes of transition to market economies. Common characteristics among countries of the region; the differences and special traits of individual countries. Historical, analytical, and empirical perspectives on topics at the center of controversies and specific policy problems over several decades. Recommended: ECON 1, 51, and 52. GER:3b  
5 units, Aut (Muñoz)

**OSPSANTG 141X. Politics and Culture in Chile**—The relationship between politics and culture in Chile during the 20th century, reflecting on the effects of such relationships on esthetics and identity. The possibility that, in Chile, culture has been pulled by politics and social praxis, a condition that has created a deficit in cultural thickness. The oligarchic regime around 1920, the welfare state around 1940, projects of social transformation around 1970, dictatorship around 1980, women writers and Mapuche poetry in contemporary Chile. GER:3a  
5 units, Spr (Subercaseaux)

**OSPSANTG 160X. Latin America in the International Economy**—(Enroll in ECON 160X.) The external economic relations of Latin American countries. Similarities and differences among countries, focusing on the last 15 years. Analytical and empirical elements for interpretation of policies, and the outcome. Trade, external debt, capital flows, and the inter-relationships between domestic economy and overall growth. Recommended: ECON 1, 51, and 52. GER:3b  
5 units, Win (Muñoz)

**OSPSANTG 221X. Political Transition and Democratic Consolidation: Chile in Comparative Perspective**—(Enroll in POLISCI 243P.) The dynamics of the analytically interesting Chilean transition. Topics: the challenges faced by democratic governments in 90s, framed by the legacy of military rule, 1973-90; the country's political culture; institutional traditions of democracy in Chile; and the Chilean process within the broader context of Latin American political development. GER:3b  
5 units, Aut (Walker)

**OSPSANTG 116X. Political Transition and Democratic Consolidation: Chile in Comparative Perspective**—(Enroll in POLISCI 242P.) Chile's strides towards becoming a developed country have engendered high levels of alienation and disaffection among significant sectors of the population. The roots of this apparent paradox of modernization, focusing on newly emerging actors in the Chilean political scene: Mapuche organizations, women's groups, the environmental movement, and new features of the established ones like trade unions and human rights activists. GER:3b  
5 units, Spr (Correa)

## SPANISH LANGUAGE PROGRAM

**OSPSANTG 33A,B,C. Spanish Language Tutorial**  
2 units, A: Aut, B: Win, C: Spr (Pons)

