

## BIOE331: Protein Engineering

Instructor:

Jennifer Cochran ([cochran1@stanford.edu](mailto:cochran1@stanford.edu))

Office Hours: Clark W250A, Monday 11-12

Teaching Assistants: Sarah Moore ([sjmoore@stanford.edu](mailto:sjmoore@stanford.edu)) and Bert Lui ([blui@stanford.edu](mailto:blui@stanford.edu))

Office Hours: Sarah: Friday 1-2PM Bert: Tuesdays 3-4PM

### Grading:

In-class presentations and participation: 30%

Written critiques: 30%

Final term paper: 40%

Important dates:

Feb 19th, 2009: Term paper proposal due 5PM

Mar 12th, 2009: Final term paper due 5PM

**Note: The “Med MD” grading designation is only offered so that medical students can take the course. Students from other departments are expected to take the course for a letter grade. For medical students, a grade of a B is required to receive credit for the course.**

### Course schedule:

January	6	T	Lecture 1: Course Introduction
			<b>Combinatorial Methods</b>
	8	TR	Lecture 2: Protein Evolution I- Cell surface and phage display technologies
	13	T	Discussion group 1: Led by Sarah and Bert
	15	TR	Lecture 3: Protein Evolution II- Cell-free protein engineering technologies
	20	T	Guest Lecture: Annelise Barron
	22	TR	Lecture 4: Library creation and screening/selection
	27	T	Discussion group 2
			<b>Engineered Proteins</b>
	29	TR	Lecture 5: Engineering molecular probes
February	3	T	Discussion group 3
	5	TR	Lecture 6: Antibody engineering
	10	T	Discussion group 4
	12	TR	Lecture 7: Alternative scaffolds for protein engineering
	17	T	Discussion group 5
	19	TR	Lecture 8: Therapeutic protein engineering
	24	T	Discussion group 6
	26	TR	Lecture 9: Enzyme and biosensor engineering
March	3	T	Discussion group 7
	5	TR	Lecture 10: Engineered nucleic acids (Christina Smolke)
	10	T	Discussion group 8
	12	TR	Lecture 11: Engineered protein-based biomaterials (Sarah Heilshorn)