

Clicker Quiz

Last night's exam was the best exam ever!

- A. I am 100% certain that this is true
- B. I think this is true
- C. I think it might be true
- D. I think there is an outside chance
- E. I am 100% certain that this is not false
- F. There was an exam last night?

Organic Lecture courses CHE 322 and 326
Advanced Organic Courses
CHE 345, 346, 348

Laboratory courses CHE 327, 383-384

Undergraduate Research Opportunities at
Stony Brook and Elsewhere

Chemistry Minor

Graduate Programs and Career Opportunities.

Why are you taking organic chemistry?

- A. It is a requirement for my biochemistry major.
- B. It is a requirement for my biology major.
- C. It is a requirement for my chemistry major.
- D. It is a requirement for my major.
- E. It is a requirement for professional school (e.g. premed).
- F. I had the time slot free and organic chemistry looked interesting.

Organic Lecture courses CHE 322 and 326**CHE 322 Organic Chemistry IIA**

Discussion of the structure, reactivity, and properties of organic compounds introduced in CHE 321 is continued. The chemistry of substances important in biology, medicine, and technology is emphasized. CHE 322 may not be taken for credit in addition to CHE 326.

Prerequisite: C or higher in CHE 321

Organic Lecture courses CHE 322 and 326**CHE 326 Organic Chemistry IIB**

Similar to CHE 322 but providing a more fundamental view of organic compounds, reaction mechanisms, and synthesis, based somewhat more explicitly on thermodynamics and kinetics. Especially for those who may major in chemistry, biochemistry, or another physical science. CHE 326 may not be taken for credit in addition to CHE 322.

Prerequisite: C or higher in CHE 321

**Required for Chemistry, Biochemistry and
Chemical and Molecular Engineering majors**

Advanced Lecture courses CHE 345, 346, 348**CHE 345 Structure and Reactivity in Organic Chemistry
(Fall Course)**

Electronic and stereochemical theories relating to organic structure and reactions. Topics such as bonding, strain, aromaticity, MO theory, molecular rearrangements, pericyclic reactions, and photochemistry are covered.

Prerequisite: Prerequisite: CHE 322 or 326 Pre- or Corequisite: CHE 301 or 312

Taught with CHE 504, has a recitation in addition to lecture

Advanced Lecture courses CHE 345,346, 348

CHE 346 Biomolecular Structure and Reactivity (Fall Course)

The reactivity and physiological function of biological macromolecules and the monomeric constituents are described at the chemical level. The course reflects the most recent advances at the interface of organic chemistry and biochemistry. Specific topics include catalysis, biomimicry, protein and DNA modification, binding and target recognition, and correlation between three-dimensional structure and reactivity.

Prerequisite: Prerequisite: CHE 322 or 326 Pre- or Corequisite: CHE 301 or 312

Taught with CHE 541, has a recitation in addition to lecture

Advanced Lecture courses CHE 345,346, 348

CHE 348 Reaction Mechanisms in Organic Chemistry (Fall Course)

Important classes of mechanisms of reactions useful in synthesis are explored. The kinetics and thermodynamics of these reactions are analyzed using modern structural theories. Examples of reaction types are substitutions, rearrangements, additions, eliminations, and selected organometallic reactions.

Prerequisite: Prerequisite: CHE 322 or 326

Taught with CHE 502, has a recitation in addition to lecture

Laboratory courses CHE 327, 383-384

<http://www.sinc.sunysb.edu/Class/orgolab/>

CHE 327 Organic Chemistry Laboratory (Fall, Winter, Spring or Summer Course)

Techniques of isolating and handling organic substances, including biological materials. A one-semester course that provides a basic organic laboratory experience. It is recommended that students take CHE 327 at the same time as or immediately following CHE 322 or 326. Four laboratory hours and one lecture hour per week. Not for credit in addition to CHE 383.

Prerequisite: CHE 134 or 144
Pre- or Corequisite: CHE 321

(2 credits)

Laboratory courses CHE 327, 383-384

CHE 383 Introductory Synthetic and Spectroscopic Laboratory Techniques (Fall Course)

Fundamental laboratory techniques including methods of separation, purification, synthesis, and analysis. Emphasis is on organic with an introduction to inorganic problems. For students who require substantial laboratory skills, such as those planning careers in research. Not for credit in addition to CHE 327.

Prerequisite: CHE 134 or 144
Pre- or Corequisite: CHE 321

(2 credits)

Laboratory courses CHE 327, 383-384

CHE 384 Intermediate Synthetic and Spectroscopic Laboratory Techniques (Spring Course)

Application of fundamental laboratory techniques to organic and inorganic problems including multistep syntheses and structural and mechanistic determinations. Lectures cover material pertaining to the experimental work, with an emphasis on spectroscopy.

Prerequisite: CHE 383
Pre- or Corequisite: CHE 322 or 326

(3 credits)

Chemistry Minor

General Chemistry with lab 10 credits
plus 12 credits of 300 level courses or
research. 22 credit total.

Special Rule. You need 9 credits of
upper division CHE not required by your
major.

Chemistry Minor

Teaching practicum CHE 475-476 does not count toward the 22 credits, but it does count toward the 9.

Chemistry Minor - Examples

History major

Gen Chem with lab	10 credits
Org Chem with lab	10 credits
CHE 345 adv. org.	3 credits
	23 total

Chemistry Minor - Examples

Biology major

Gen Chem with lab	10 credits
Org Chem with lab	10 credits
CHE 345 adv. org.	3 credits
Teaching practicum	6 credits
	29 total

Chemistry Minor - Examples

Biochem major

Gen Chem with lab	10 credits
Org Chem with lab	10 credits
P-Chem	3 or 4 credits
CHE 300 elective.	3 credits
Teaching practicum	6 credits
	32-33 total

Chemistry Minor - Examples

Biochem major

Gen Chem with lab	10 credits
Org Chem with lab	10 credits
P-Chem	3 or 4 credits
Research	9 credits
	32-33 total

What do you want to be doing in 2028?

A. Scientific Research	Undergraduate research is recommended for of these
B. Medicine (M.D.)	
C. Medicine (Other)	
D. Dentistry	
E. Teaching	
F. Business	
G. Other	

Undergraduate Research Opportunities at Stony Brook and Elsewhere

URECA

<http://www.sunysb.edu/ureca/>

NSF REU

http://www.nsf.gov/crssprgm/reu/reu_search.cfm

How do you find a research opportunity at Stony Brook?

Use the web to learn more about research in the various faculty research groups.

Make an appointment to talk to faculty of interest.

Start in your home department. Also check out the medical school.

Faculty like students who are bright, enthusiastic and pleasant to work with.

Graduate Programs and Career Opportunities.

Bachelor of Science Degree / Master of Science Degree Program

A student interested in this research-intensive graduate program, intended to prepare students for professional employment in the chemical or pharmaceutical industries, may apply for admission at the end of the junior year. The program leads to a Bachelor of Science degree in Chemistry, Engineering Chemistry or Biochemistry at the end of the fourth year and a Master of Science in Chemistry at the end of the fifth year. During the senior year; the student is expected to take two 500-level CHE courses and begin research. In the fifth year; the student works full-time on research, earning 24 credits in CHE 599.

High School Teaching - 3 Ways

The undergraduate route to certification requires completion of a Bachelor of Arts in Chemistry degree or a Bachelor of Science in Chemistry degree with the Teacher Preparation option.

The graduate route to certification requires completion of the Master of Arts in Teaching degree, as well as completion of science course requirements equivalent to the Stony Brook Chemistry Teacher Preparation program.

The combined route to certification in which students obtain both the Bachelor of Science in Chemistry and Master of Arts in Teaching degrees in 5 years, i.e., one additional year beyond the bachelor degree alone.

<http://www.chem.stonybrook.edu/pdfs/MATpgm.pdf>

See Professor Robert Kerber

Graduate Programs and Career Opportunities.

<http://www.chemistry.org/>

Graduate Programs Ph.D.

Good Grades
Graduate Record Exam
Undergraduate Research

How much does 4 years of grad school cost?

- a. 200K \$ b. 150K \$ c. 100K \$
d. 50K \$ e. 0K \$ f. -100K \$

Graduate Programs
Ph.D.

Good Grades
Graduate Record Exam
Undergraduate Research

Cost: *They pay you!*

Starting Salaries 2008		
Degree: B.S.		
GPA 3.25		
Degree Specialty: Organic chemistry		
Pharmaceutical products manufacturing		
Employer Size: 10,000 to 25,000		
Geographic Location: New York City Metro Area		
High Decile	90th Percentile	\$82,890
	80th Percentile	\$74,780
	70th Percentile	\$69,448
	60th Percentile	\$65,226
Median (midpoint)	50th Percentile	\$61,404
	40th Percentile	\$57,806
	30th Percentile	\$54,292
	20th Percentile	\$50,421
Low Decile	10th Percentile	\$45,487

Starting Salaries 2008		
Degree: M.S.		
Degree Specialty: Organic chemistry		
Pharmaceutical products manufacturing		
Employer Size: 10,000 to 25,000		
Geographic Location: New York City Metro Area		
High Decile	90th Percentile	\$85,120
	80th Percentile	\$76,791
	70th Percentile	\$71,317
	60th Percentile	\$66,980
Median (midpoint)	50th Percentile	\$63,056
	40th Percentile	\$59,361
	30th Percentile	\$55,752
	20th Percentile	\$51,778
Low Decile	10th Percentile	\$46,710

Starting Salaries 2008		
Degree: Ph.D.		
Degree Specialty: Organic chemistry		
Pharmaceutical products manufacturing		
Employer Size: 10,000 to 25,000		
Geographic Location: New York City Metro Area		
High Decile	90th Percentile	\$106,091
	80th Percentile	\$95,710
	70th Percentile	\$88,887
	60th Percentile	\$83,482
Median (midpoint)	50th Percentile	\$78,591
	40th Percentile	\$73,985
	30th Percentile	\$69,488
	20th Percentile	\$64,534
Low Decile	10th Percentile	\$58,219

