

2008-2009 CURRICULUM CHECK SHEET is a guide to the requirements of this major. **It is NOT necessary to take these courses in the order given.** Please consult the online Bulletin for specific details (<http://www.lasierra.edu/academics/bulletin>).

		FALL	WINTER	SPRING	
<b>FIRST YEAR</b>	* General Chemistry (CHEM 111, 112, 113 & Labs)(15 units)	_____	_____	_____	
	** Calculus I, II (MATH 131, 132)(8 units)	_____	_____	_____	
	<i>Calculus prerequisite satisfies Math Foundational Studies Requirement</i>				
	** General Biology (BIOL 111, 112, 113 & Labs)(15 units)	_____	_____	_____	
	First Year Seminar (UNST 101/100)(2-6 units)	_____	_____	_____	
	College Writing (ENGL 111, 112, 113)(9 units)	_____	_____	_____	
	Growing Up in America (SSCI 104) OR Identity & Society (SSCI 105) OR Childhood in Global Perspective (SSCI 106)(4 units)	_____	_____	_____	
	THEME IA: Understanding Human Beings OR National & Global Citizenship (4 units)	_____	_____	_____	
	THEME III: Religious Beliefs & Practice (4 units)	_____	_____	_____	
	Lifetime Fitness (PEAC 120)(2 units)	_____	_____	_____	
<b>SECOND YEAR</b>	* Chemistry Seminar (CHEM 205)(1 unit)	_____	_____	_____	
	* Analytical Chemistry (CHEM 224)(4 units)	_____	_____	_____	
	* Organic Chemistry I, II, III (CHEM 371, 372, 373 & Labs)(12 units)	_____	_____	_____	
	** General Physics (PHYS 231, 232, 233 & Labs)(15 units)	_____	_____	_____	
	Exploring American Culture thru Literature (HUMN 204) OR Expl. Amer. Culture thru Visual & Perf. Arts (HUMN 205)(4 units)	_____	_____	_____	
	THEME III: Religious Beliefs & Practice (4 units) World Language Foundational Studies requirement (12 units)	_____	_____	_____	
<b>THIRD YEAR</b>	* Chemistry Seminar (CHEM 205)(1 unit)	_____	_____	_____	
	* Advanced Organic Laboratory (CHEM 375)(1 unit)	_____	_____	_____	
	* Introduction to Research (CHEM 408)(1 unit)	_____	_____	_____	
	* Instrumental Analysis: CHEM 424 & Lab OR 425 & Lab OR 426 & Lab (4 units)	_____	_____	_____	
	* Biochemistry (CHEM 491, 492, 493, & Labs)(12 units)	_____	_____	_____	
	* Physical Chemistry (CHEM 351, 352 & Labs)(8 units)	_____	_____	_____	
	THEME IIB: Historical or Contemporary Culture & Context (4 units) Adventism in a Global Perspective (RLGN 304) OR The Experience of Religion in Three Cultures (RLGN 305)(4 units)	_____	_____	_____	
<b>FOURTH YEAR</b>	* Senior Seminar (CHEM 405)(1 unit)	_____	_____	_____	
	* Directed Research (CHEM 498)(1 unit)	_____	_____	_____	
	* Chemistry Electives to complete 69 units (8 units)	_____	_____	_____	
	THEME III: Religious Beliefs & Practice (4 units)	_____	_____	_____	
	Scientific Foundations: Choose one course from the following: NSCI 404, 405, 406, 407 (4 units)	_____	_____	_____	
	THEME IIA: Arts Appreciation or History (4 units)	_____	_____	_____	
	Religious, Moral & Social Aspects of Chemistry (UNST 404D)(4 units)	_____	_____	_____	
	Upper Division Rhetorical Course (This requirement met by CHEM 405, 408, and 1 from CHEM 424, 425, or 426)(4 units)	_____	_____	_____	
	Electives to complete 190 units	_____	_____	_____	
	* Major Requirements (69 units)				
	** Cognate Requirements				

# BIOCHEMISTRY

## *B.S. Degree*

**CAREER OPPORTUNITIES AND RELATED OCCUPATIONS:** Biochemists perform basic research and applied research and product development in industry or university-operated laboratories, and in hospitals. Many also teach or work in universities, private industry, or government agencies, or as self-employed consultants to industry and the government. Career opportunities may also involve work as an oceanographer, soil conservationist, agricultural scientist, biological scientist, life science technician, in the fields of nutrition, dietetics, molecular biology, health science, microbiology and pharmacology.

**EDUCATIONAL QUALIFICATION:** A B.S. degree in biochemistry is the entry level for technical positions in industry. For more advanced research and management positions in Biochemistry, Masters and Ph.D. degrees are eventually needed.

**DENOMINATIONAL OPPORTUNITIES:** Biochemists perform vital research in the medical fields. Biochemistry teachers are in demand in Seventh-day Adventist colleges and universities.

**JOB OUTLOOK:** Employment of chemists is expected to grow more slowly than the average rate for all occupations through 2014. Job growth will be concentrated in pharmaceutical and medicine manufacturing and in professional, scientific, and technical services firms. Employment in the nonpharmaceutical segments of the chemical industry, a major employer of chemists, is expected to decline over the projection period.

**ENTERING SALARY:** The National Association of College and Employers reports that for Spring 2006 the national entering wage level for those with a Bachelor's degree in Chemistry was **\$38,646** per year and those with a Doctoral degree was **\$63,446**. According to the Occupational Outlook Handbook, the median annual earnings of chemists in 2004 were **\$56,060**.

## SOURCES OF ADDITIONAL INFORMATION

### *Websites:*

#### **La Sierra University**

<http://www.lasierra.edu/>

### *Department Contacts:*

#### **Chairperson:**

Marvin Payne

#### **Advisors:**

Nate Brandstater

Jennifer Helbley

Michael Malarek

Krista Motschieder

Marvin Payne

#### **Location:**

Palmer Hall Room 230

951-785-2148

#### **Pre-Professional Coordinator:**

Cynthia C. Douglas

[cdouglas@lasierra.edu](mailto:cdouglas@lasierra.edu)

Palmer Hall Room 263

951-785-2278

### *Professional Organizations:*

American Society for Biochemistry  
and Molecular Biology

9650 Rockville Pike

Bethesda, MD 20814

<http://www.faseb.org/asbmb>

American Chemical Society

Education Division

1155 16th Street NW.

Washington, DC 20036

Academic Advising  
Center for Student Academic Success  
Sierra Vista Hall, Room 114  
(951) 785-2452

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