LA SIERRA UNIVERSITY

BIOCHEMISTRY

B.S. Degree

Approved by Department. Last updated 7/1/09

2009-2010 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
FIRST YEAR	* General Chemistry (CHEM 111, 112, 113 & Labs)(15 units) *Meets Theme IVB*	_____	_____	_____
	** Calculus I, II (MATH 131, 132)(8 units)	_____	_____	_____
	Calculus prerequisite satisfies Math Foundational Studies Requirement			
	** General Biology (BIOL 111, 112, 113 & Labs)(15 units) *Meets Theme IVA*	_____	_____	_____
	First Year Seminar (UNST 101/100)(2-6 units)	_____	_____	_____
	College Writing (ENGL 111, 112 ,113)(9 units) OR (ENGL 124)(4 units)	_____	_____	_____
	Lifetime Fitness (PEAC 120)(2 units)	_____	_____	_____
	Theme IA/B: Understanding Human Beings OR National & Global Citizenship (4 units)	_____	_____	_____
	Theme IC: Globalization, Identity, & Citizenship. *Choose 1 course from:* SSCI 104, 105, 106, 107 (4 units)	_____	_____	_____
	Theme III: Religious Beliefs & Practice (4 units)	_____	_____	_____
SECOND YEAR	* Chemistry Seminar (CHEM 205)(.5 units)(2 units total)	_____	_____	_____
	* 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) *Meets Theme IVB*	_____	_____	_____
	World Language Foundational Requirement *(Proficiency through 153)*	_____	_____	_____
	Theme IIC: Exploring American Culture. *Choose 1 course from:* HUMN 204, 205 (4 units)	_____	_____	_____
	Theme III: Religious Beliefs & Practice (4 units)	_____	_____	_____
THIRD YEAR	* Chemistry Seminar (CHEM 205)(.5 units)(2 units total)	_____	_____	_____
	* Physical Chemistry (CHEM 351, 352 & Labs)(8 units)	_____	_____	_____
	* 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)	_____	_____	_____
	Theme IIB: Historical or Contemporary Culture & Context (4 units)	_____	_____	_____
	Theme III: Religious Beliefs and Practice. *Choose 1 course from:* RLGN 304, 305 (4 units)	_____	_____	_____
FOURTH YEAR	* Senior Seminar (CHEM 405)(1 unit)	_____	_____	_____
	* Directed Research (CHEM 498 OR 499)(1 unit)	_____	_____	_____
	* Chemistry Electives to complete 69 units (8 units)	_____	_____	_____
	Theme IIA: History & Appreciation of Arts (4 units)	_____	_____	_____
	Theme III: Religious Beliefs and Practice (4 units) *Must be in Scripture, Theme IIIC, unless previously taken*	_____	_____	_____
	Theme IVC: Scientific Foundations: Choose one course from the following: NSCI 404, 405, 406, 407 (4 units)	_____	_____	_____
	Theme V: 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

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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 July 2007 the national entering wage level for those with a Bachelor's degree in Chemistry was **$41,506** per year. According to the Occupational Outlook Handbook, the median annual earnings of chemists in 2006 were **$59,870.**

SOURCES OF ADDITIONAL INFORMATION

Websites:

La Sierra University
http://www.lasierra.edu/

Department Contacts:

Chairperson:
Marvin Payne, Ph.D.

Advisors:
Nate Brandstater, Ph.D.
Jennifer Helbley, Ph.D.
Michael Malarek, Ph.D.
Krista Motschiedler, Ph. D.
Marvin Payne, Ph.D.

Location:
Palmer Hall Room 230
951-785-2148

Pre-Professional Coordinator:
Cynthia C. Douglas
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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
http://www.acs.org

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

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