LA SIERRA UNIVERSITY

BIOMATHEMATICS

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	* Introduction to Computer Science (CPTG 121)(4 units)	_____	_____	_____
	* Calculus I, II, III (MATH 131, 132, 133)(12 units)			
	Calculus prerequisite satisfies Math Foundational Studies Requirement	_____	_____	_____
	** General Chemistry I, II, III (CHEM 111, 112, 113 & Labs)(15 units)	_____	_____	_____
	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 IC: Globalization, Identity, & Citizenship. *Choose 1 course from:* SSCI 104, 105, 106, 107 (4 units)	_____	_____	_____
	Theme III: Religious Beliefs & Practices (4 units)	_____	_____	_____
SECOND YEAR	* General Biology (BIOL 111, 112, 113 & Labs)(15 units)	_____	_____	_____
	** Tools & Methods I, II, III (BIOL 221, 222, 223)(3 units)			
	** Organic Chemistry I (CHEM 371)(4 units)	_____	_____	_____
	World Language Foundational Requirement *(Proficiency through 153)*	_____	_____	_____
	Theme IA/B: Understanding Human Nature OR National & Global Citizenship (4 units)	_____	_____	_____
	Theme IIC: Exploring American Culture. *Choose 1 course from: (*HUMN 204, 205)(4 units)	_____	_____	_____
	Theme III: Religious Beliefs & Practice (4 units)	_____	_____	_____
	Elective	_____	_____	_____
THIRD YEAR	* Introduction to Linear Algebra & Discrete Math., Differential Equations, Vector Calculus (MATH 231, 232, 233)(12 units)	_____	_____	_____
	* Major Electives: 12 additional units of upper division mathematics, computer science, or biology courses (8 units)	_____	_____	_____
	* Computer Science Seminar (CPTG 485)(.5 unit)[2 units required] OR			
	* Mathematics Seminar (MATH 485) OR Biology Seminar (BIOL 405)(2 units)	_____	_____	_____
	** Cellular & Molecular Biology (BIOL 301 & Lab)(5 units)	_____	_____	_____
	** Genetics (BIOL 302 & Lab)(5 units)	_____	_____	_____
	Theme IIA: History & Appreciation of Arts (4 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)	_____	_____	_____
	Upper Division Rhetorical Course (4 units)	_____	_____	_____
	Elective	_____	_____	_____
FOURTH YEAR	* Biomathematical Modeling (MATH 461, 462) alternate years (8 units)	_____	_____	_____
	* Major Electives: See above. 1 unit may be applied to the Biomathematics major for each Biochemisry course selected from CHEM 491, 492, and 2 units may be added for CHEM 493 (4 units)	_____	_____	_____
	* Mathematics Seminar (MATH 485) OR Biology Seminar (BIOL 405) OR Computer Science Seminar (CPTG 485)(.5 unit)[2 units required]	_____	_____	_____
	Theme III: Religious Beliefs and Practice (4 units) *Must be in Scripture, Theme IIIC, unless previously taken*	_____	_____	_____
	Theme IVC: Scientific Foundations. *Choose 1 course from:* NSCI 404, 405, 406, 407 (4 units)	_____	_____	_____
	Theme V: Religious, Moral & Social Aspects of Mathematics (UNST 404T)(4 units)	_____	_____	_____
	Electives to complete 190 quarter units (CHEM 372, 373; PHYS 231, 231, & 233 recommended) *Meets Theme IVB*	_____	_____	_____

* Major Requirements (75 units)

** Cognate Requirements

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CAREER OPPORTUNITIES AND RELATED OCCUPATIONS: Graduates in Biomathematics are equipped to pursue a variety of careers, depending upon the particular emphasis chosen during their undergraduate training. They may be employed as statisticians, scientific programmers, or in areas of bio-science where training in quantitative techniques is needed. Further, they are equipped to pursue graduate studies in theoretical biology, physiology, biostatistics, statistics, and areas of applied mathematics. This major can also be used for a pre-medicine or pre-dentistry program. A large number of mathematicians work in the Federal Government with the National Aeronautics and Space Administration. In the private sector, research and development laboratories, manufacturers of guided missiles, space vehicles, aircraft, and office computing machines are industries providing most of the jobs.

EDUCATIONAL QUALIFICATIONS: A Bachelor's degree is the minimum educational requirement for some beginning jobs. A double major will give excellent background for computer biological simulation and industry research. However, a Ph.D. degree is essential for college and university teaching and research, while a Master's degree will prepare for consulting jobs, quality control positions in industry, computer science and biological research.

JOB OUTLOOK: Employment of mathematicians is expected to decline through 2014, reflecting the reduction in the number of jobs with the title "mathematician." As a result, competition is expected to be keen for the limited number of jobs as mathematicians. Master's and Ph.D. degree holders with a strong background in mathematics and a related discipline, such as engineering or computer science, should have the best opportunities. Many of these workers have job titles that reflect their occupation, such as systems analyst, rather than the title mathematician, reflecting their primary educational background.

SALARY: The National Association of Colleges and Employers for 2008 reports that median annual earnings of mathematicians were **$86,930**.

SOURCES OF ADDITIONAL INFORMATION

Websites:

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

Mathematics
www.lasierra.edu/departments/mathematics/

Department Contacts:

Chairperson:
Jon Vanderwerff, Ph.D.

Advisors:
Wilton Clarke, Ph.D.
Vernon Howe, Ph.D.
Jon Vanderwerff, Ph.D.

Location:
Price Science Complex, Rm 247
951-785-2197

Professional Organizations:

Mathematical Assoc. of America
1529 18th Street, NW
Washington, D.C. 20036
http://www.maa.org

American Mathematical Society,
Department of Professional
Programs and Services
P.O. Box 6248
Providence, RI 02940-6248
http://www.ams.org

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

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