

ACMS Sample Curriculum – Concentration in Biological Sciences

<i>First Year: First Semester</i>		<i>First Year: Second Semester</i>	
ACMS 10550. Applied Calculus I	4	ACMS 10560. Applied Calculus II	4
CHEM 10171. Chemical Principles	4	CHEM 10172: Organic Structure and Reactivity	4
BIOS 10171: Biology I	4	BIOS 10172: Biology II	4
History or Social Science	3	Philosophy or Theology	3
WR 13x00. Writing	3	University Seminar	3
FYS 10101. First Year Experience	1	FYS	1
Total Credits	19	Total Credits	19

<i>Sophomore Year: First Semester</i>		<i>Sophomore Year: Second Semester</i>	
ACMS 20550. Applied Math Methods I	3.5	ACMS 20750. Applied Math Methods II	3.5
ACMS 20620. Applied Linear Algebra/ ACMS 20220. Scientific Computing with Python	3/3.5	ACMS 20620. Applied Linear Algebra/ ACMS 20220. Scientific Computing with Python	3/3.5
Language	3	ACMS 30530. Introduction to Probability	3
Philosophy or Theology	3	Language	3
CHEM 20273 / 21273: Organic Reactions & Appl. / Lab	4	Philosophy or Theology	3
Total Credits	16.5/17	Total Credits	15.5/16

<i>Junior Year: First Semester</i>		<i>Junior Year: Second Semester</i>	
ACMS 30600. Stat Mthd & Data Analysis I	3.5	ACMS Elective	3
PHYS 10310: General Physics I	4	PHYS 10320: General Physics II	4
Language	3	Literature or Fine Arts	3
Philosophy or Theology	3	Elective	3
BIOS 30341 or 30312: Cell Biology / General Ecology	3	Biology/Chemistry/Physics Elective	3
Total Credits	15.5	Total Credits	15

*One of these two courses is a required course. If both courses are taken, the other course can be counted as an ACMS elective.

<i>Senior Year: First Semester</i>		<i>Senior Year: Second Semester</i>	
ACMS 40390. Numerical Analysis/ (ACMS 40730. Math/Comp Modeling/ACMS 40760. Stochastic Modeling)**	3	ACMS 40390. Numerical Analysis/ (ACMS 40730. Math/Comp Modeling/ ACMS 40740. Math/Comp Modeling in neuroscience)**	3
ACMS Elective	3		
Biology Elective	3	ACMS Elective	3
Elective	3	Electives	9
Total Credits	12	Total Credits	15

**One of the ACMS 40730, 40740, 40760 will satisfy the modeling course requirement. If two or more courses are taken, the other can be counted as ACMS elective. At least one of the three courses will be offered each semester.

Notes:

- Equivalent or higher sequences in science may be substituted, e.g., MATH 10850, 10860 for MATH 10550, 10560.
- Some ACMS courses, ACMS 30440 in particular, are not acceptable as electives for the major. The list of acceptable courses for ACMS majors can be obtained from the student's advisor. Introduction to Mathematical Reasoning (MATH 20630) is also an acceptable elective.
- Students with an interest in attending graduate school in mathematics or applied mathematics are encouraged to take Algebra (MATH 30710).
- An appropriate class in bioinformatics, biophysics, or a related topic, may be substituted for 3 credits in ACMS coursework with the permission of the Director of Undergraduate Studies.
- A student should take three core requirement courses during the first year, including one course that is designated a University Seminar. It is recommended that one course in history or social sciences be taken in the first year and one philosophy and one theology be taken by the end of sophomore year.

College of Science – Degree Requirements: <http://science.nd.edu/undergraduate/degree-requirements/> - Science
College of Science – Science Electives: <http://science.nd.edu/undergraduate/sample-curricula/>