

# APPLIED SCIENCES BACHELOR OF SCIENCE

## Leading to the Bachelor of Science Degree in Applied Sciences

The Bachelor of Science in Applied Sciences (BSAS) program is an interdisciplinary and experiential degree that gives students solid grounding in biology, chemistry, and physics – ideal for those with an interest in the sciences and a curiosity to explore and create. Applied Sciences Majors gain competence in all three disciplines through dedicated coursework and active research projects. Students acquire extensive laboratory experience and the computational aptitude to analyze and report their findings. The interdisciplinary nature of the BSAS program is in line with the expectations of today's varied job market, preparing students for careers in research and development, technical writing, or scientific computing. Interested students will be well qualified to continue their studies in graduate programs or medical school.

### Student Learning Outcomes

- Develop advanced technical skills in multiple scientific disciplines
- Integrate mathematics and computer science with both the physical and life sciences
- Obtain theoretical and experimental skill sets in both the classroom and the laboratory
- Effectively communicate scientific and technical findings to a wide audience in written and oral form
- Prepare for diverse career paths, including in-demand industries like biotechnology and pharmaceuticals, or continued graduate education

Total credits for degree: 128

This is a four-year full-time program, which starts in the fall semester of the student's first year and is planned to end in the summer semester of the student's fourth year.

Course	Title	Credits
<b>Freshman Year</b>		
<b>Fall Semester</b>		
CHEM1100	GENERAL CHEMISTRY I	4
MATH1776	CALCULUS 1A	2
MATH1777	CALCULUS 1B	2
PHYS1250	ENGINEERING PHYSICS I	4
English Sequence		4
<b>Credits</b>		<b>16</b>
<b>Spring Semester</b>		
BIOL1100	CELL & MOLECULAR BIOLOGY	4
CHEM1600	GENERAL CHEMISTRY II	4
MATH1876	CALCULUS 2A	2
MATH1877	CALCULUS 2B	2
English Sequence		4
<b>Credits</b>		<b>16</b>
<b>Sophomore Year</b>		
<b>Fall Semester</b>		
BIOL2200	ADVANCED MOLECULAR BIOLOGY	4
CHEM2500	ORGANIC CHEMISTRY I	4

Course	Title	Credits
PHYS1750	ENGINEERING PHYSICS II	4
MATH or COMP Elective		4
<b>Credits</b>		<b>16</b>
<b>Spring Semester</b>		
CHEM3500	ORGANIC CHEMISTRY II	4
MATH or COMP Elective		4
HSS Elective		4
COOP2500	INTRODUCTION TO COOPERATIVE EDUCATION	0
<b>Credits</b>		<b>12</b>
<b>Summer Semester</b>		
COOP3000	OPTIONAL COOP EDUCATION	
<b>Credits</b>		<b>0</b>
<b>Junior Year</b>		
<b>Fall Semester</b>		
BIOL Elective, 3000 Level or higher or BIOL1700 or BIOL1750		4
CHEM4200	ADVANCED LABORATORY TECHNIQUES IN CHEMISTRY	4
HSS Elective		4
PHYS Elective (3000 Level or higher) or PHYS2XXX		4
<b>Credits</b>		<b>16</b>
<b>Spring Semester</b>		
COOP3500	COOP EDUCATION 1	
<b>Credits</b>		<b>0</b>
<b>Summer Semester</b>		
BIOL Elective, 3000 Level or higher or BIOL1700 or BIOL1750		4
CHEM Elective, 3000 Level or higher		4
PHYS Elective, 3000 Level or higher or PHYS2XXX		4
HSS Elective		4
<b>Credits</b>		<b>16</b>
<b>Senior Year</b>		
<b>Fall Semester</b>		
COOP4500	COOP EDUCATION 2	
<b>Credits</b>		<b>0</b>
<b>Spring Semester</b>		
PHYS3000	COMPUTATIONAL PHYSICS	4
BIOL Elective, 3000 Level or higher or BIOL1700 or BIOL1750		4
SCIN5000	SENIOR CAPSTONE I	4
HSS Elective		4
<b>Credits</b>		<b>16</b>
<b>Summer Semester</b>		
SCIN5500	SENIOR CAPSTONE II	4
PHYS Elective, 3000 Level or higher		4
HSS Elective		4
<b>Credits</b>		<b>12</b>
<b>Total Credits</b>		<b>120</b>

### ENGL/HSS Note

Students are required to complete:

- At least one course in Humanities: CSAS, HSSI, HIST, HUMN, LITR and PHIL
- At least one course in the Social Sciences; CSAS, HSSI, COMM, ECON, ENVM, POLS, PSYC, and SOCL
- The remaining course from either the Humanities or Social Sciences category.

Students with a three English course sequence may use the third English course to satisfy a Humanities requirement.

A minimum of 28 credits total, including English, humanities, and social science credit, is required to complete the humanities and social sciences graduation requirement.

Math Placement (<https://catalog.wit.edu/academic-policies-procedures/ug/math-placement/>) may alter the course schedule above.

## Physics Elective

Course	Title	Credits
PHYS3600	CLASSICAL MECHANICS	4
PHYS3800	SPECIAL TOPICS IN PHYSICS	4
PHYS4500	INTRODUCTION TO QUANTUM MECHANICS	4
PHYS4700	ELECTRODYNAMICS	4

## Math or Computer Science Elective

Course	Title	Credits
COMP1000	COMPUTER SCIENCE I	4
COMP1050	COMPUTER SCIENCE II	4
MATH2025	MULTIVARIABLE CALCULUS	4
MATH2100	PROBABILITY & STATISTICS FOR ENGINEERS	4
MATH2200	ADVANCED STATISTICS	4
MATH2500	DIFFERENTIAL EQUATIONS	4
MATH2750	DIFFERENTIAL EQUATIONS & SYSTEMS MODELING	4
MATH2860	LINEAR ALGEBRA & MATRIX THEORY	4
MATH3700	OPERATIONS RESEARCH	4
MATH3900	NUMERICAL ANALYSIS I	4
MATH4050	MACHINE LEARNING	4