

Biology

George Briggs, Chair (Integrated Science Center 332A) - biology.geneseo.edu/
 Distinguished Teaching Professor: R. O'Donnell. Professors: I. Bosch, H. Hoops, R. Simon, R. Spear. Associate Professors: G. Briggs, M. Chang, K. Hannam, G. Hartvigsen, J. Haynie, J. Lewis, J. Lovett, D. McPherson, S. Muench, E. Spicka. Assistant Professors: J. Apple, E. Cox, K. Militello.

Bachelor of Arts Degree in Biology

Total credit hours required to complete major: 64-65

Basic Requirements		33 semester hours
BIOL 116, 117, 119	General Biology Laboratory General Biology: Cells, Genetics, Evolution	8
BIOL 203	General Biology: Diversity, Physiology, Ecology Principles of Ecology	3
BIOL 222	Principles of Genetics	3
BIOL 300	Cell Biology	3
Electives in Biology at the 200 level or above including the following: At least two Biology laboratory course at the 200 level or above.		11
Electives in Biology at the 300 level or above including the following:		5
1) At least one Biology laboratory course at the 300 level		
2) At least one Biology course involving literature research, writing and presentations from the following: Biol 303, Biol 304, Biol 305, Biol 306, Biol 307, Biol 380, Biol 385.		
3) A maximum of four credit hours from the following: Biol 299, Biol 381, Biol 382, Biol 395, Biol 399..		
Related Requirements		31-32 semester hours
CHEM 116,118,119		8
CHEM 211, 213 216		8
MATH (112, 242) OR (112, 221) OR (221, 222) OR (221, 228) OR (221, 262)		7-8
PHYS (113/114, 115/116) OR PHYS (123, 114, 125, 116) OR GSCI (111, 112) OR (PHYS 113,114, GSCI 111)		8

The Bachelor of Arts Degree in Biology is recommended for students preparing for secondary certification, dual majors or those planning to pursue graduate work outside of life sciences (e.g., law, M.B.A., psychology, public policy, or some areas of environmental studies).

Minimum Competence Requirement

To graduate with a biology major, students must attain a grade of C- or better in all required biology courses (excluding electives). A grade of C- must be achieved in any course before it can be used as a prerequisite for another course. A student may only repeat a required biology course or related requirement once for major credit and the course must be taken at the next offering of the class. If a student does not earn at least a "C-" on the second taking of the class, she/he will not be able to complete the major.

Department Writing Requirement

Students must demonstrate writing skills to the satisfaction of the Biology department. These skills will be evaluated in laboratory reports and in written assignments in 200- and 300-level biology courses.

For further information, please contact your advisor or the Department Chair. For infor-

mation on writing requirements for “double” or “triple” majors consult the *Undergraduate Bulletin* under “Multiple Majors” or the Office of the Dean of the College.

Bachelor of Science Degree in Biology

Total credit hours required to complete major: 71-72

Basic Requirements		36 semester hours
BIOL 116, 117, 119	General Biology Lab General Biology: Cells, Genetics, Evolution General Biology: Diversity, Physiology, Ecology	8
BIOL 203	Principles of Ecology	3
BIOL 222	Principles of Genetics	3
BIOL 300	Cell Biology	3
Electives in Biology including the following:		19
1)	At least one Biology laboratory course at the 300 level and at least three Biology laboratory courses at the 200 level or above.	
2)	At least one Biology course including literature research, writing and presentations from the following: BIOL 303, 304, 305, 306, 307, 380, 385.	
3)	At least twelve hours of Biology courses at the 300 level or above.	
4)	A maximum of four credit hours from the following: BIOL 299, 381, 382, 395, 399.	
Related Requirements		35-36 semester hours
CHEM 116, 118, 119)		8
CHEM 211, 213, 216		8
MATH 221 AND MATH (222 or 228)		8
PHYS 113/114, 115/116 OR PHYS 123/114, 125/116		8
One from the following: BIOL 250, CSCI 114, 119, 120, 141, 216, 230; MATH 262, 360; PSYC 250		3-4

The Bachelor of Science Degree in Biology is recommended for students preparing for graduate work in the biological sciences or medical or veterinary school. Minimum requirements for these programs include general chemistry, a year of organic chemistry, a year of physics and a year of calculus.

Minimum Competence Requirement

To graduate with a biology major, students must attain a grade of C- or better in all required biology courses, excluding electives. A grade of C- must be achieved in any course before it can be used as a prerequisite for another course. A student may only repeat a required biology course or related requirement once for major credit and the course must be taken at the next offering of the class. If the student does not earn at least a C- on the second taking of the class, she/he will not be able to complete the major.

Department Writing Requirement

Students must demonstrate writing skills to the satisfaction of the Biology department. These skills will be evaluated in Laboratory reports and in written assignments in 200- and 300-level biology courses.

For further information, please contact your advisor or the Department Chair. For information on writing requirements for “double” or “triple” majors consult the *Undergraduate Bulletin* under “Multiple Majors” or the Office of the Dean of the College.

Certification in Adolescence Education (7-12): Biology and General Science

Students who intend to become secondary school biology teachers qualify for New York State initial certification by completing the requirements of either the Bachelor of Arts or Bachelor of Science degree and the requisite courses in education (see School of Education program description).

Specialization Areas

Pre-Professional

Requirements for various biologically related professional programs (e.g. medical, veterinary, dental, optometry, etc.) vary. Students are urged to familiarize themselves with the specific requirements of the schools of their choice. (Please see back of this bulletin for additional information on the Pre-Professional Advisory Programs.)

Students planning to apply to professional schools may complete a major in any academic department or area. Minimal requirements of most professional schools include one year of biology, one year each of general chemistry and organic chemistry, one year of general physics, and one course in English.

Students planning to attend veterinary school should complete BIOL 116, 117, 119, 230, 222 (223 is optional); general chemistry, organic chemistry, and biochemistry; 6 semester hours in English and speech (English composition is required). Courses in nutrition and statistics are recommended. BIOL 242, 300, and 354 are also desirable.

Articulation Agreement

SUNY Upstate Medical University College of Medicine & SUNY Geneseo Early Admittance into Medical School

This program addresses the shortage of physicians in rural communities of New York State. There is evidence that people who grow up in rural communities or who trained there will later return to set up medical practice in a rural setting. This program will also attempt to provide a more diverse student population for entry into physician training programs.

Objectives of this program:

- To promote and facilitate the easy transition of qualified students from SUNY Geneseo into SUNY Upstate Medical University's Medical School program.
- To provide information specific to SUNY Upstate Medical University's College of Medicine.
- To provide collateral and co-curricular experiences that support students interested in medical school.
- To attract qualified students to SUNY Geneseo and to SUNY Upstate Medical University.
- To recruit, support and mentor a diverse group of students interested in medical school.
- To encourage academic coordination and faculty/administration interaction.
- To encourage early faculty-student interaction between SUNY Geneseo students and SUNY Upstate Medical University faculty.

This program seeks high school students with excellent academic records. Preference will be given to those applicants which best fulfill the following criteria:

- comes from a rural community in New York state
- has an excellent high school GPA (minimum 90% average)
- has extra-curricular activities which document some experience in a healthcare setting and a commitment to service work
- has SAT scores of 1250 or better (combined Critical Reading & Math) or ACT score of 28 Composite or better

- can be considered to be disadvantaged or from a background which makes it unlikely they would compete for admission to medical school through a traditional route

For more information contact the Director of Admission at SUNY Geneseo at (866) 245-5211 or (585) 245 5571, Dr. George M. Briggs at (briggs@geneseo.edu) or Dr. Robert W. O'Donnell at (odonnell@geneseo.edu).

3/3 Program in Physical Therapy with SUNY Upstate Medical University

SUNY-Geneseo and SUNY-Upstate Medical University offer a cooperative program to qualified students where they can receive a B.S. in Biology and a Doctor of Physical Therapy in six years. Upon completion of three years of study at Geneseo and the first year at Upstate, SUNY-Geneseo students will be awarded a Bachelor's degree from Geneseo. Upon successful completion of three years at Upstate in the entry level DPT program, students will be awarded a DPT degree from SUNY-Upstate. Qualified high school seniors may apply for early admission to the program by applying and being accepted by both SUNY-Upstate and SUNY-Geneseo. Geneseo students may apply to the DPT program at any point during their first three years at the College. You are invited to contact Dr. Jani Lewis at SUNY-Geneseo at lewisj@geneseo.edu or the Admissions Office at SUNY-Upstate Medical University (315) 464-4570 for further information.

3/4 Program with New York College of Osteopathic Medicine

SUNY-Geneseo and New York College of Osteopathic Medicine offer an affiliation program to qualified students where they can receive a B.S. in Biology and a Doctor of Osteopathic Medicine degree in seven years instead of the usual eight. The student attends SUNY at Geneseo for 3 years and then attends the professional program at New York College of Osteopathic Medicine. After the first year at New York College of Osteopathic Medicine, the student receives his or her baccalaureate degree in biology from SUNY-Geneseo. The D. O. degree is awarded after completing the four years at New York College of Osteopathic Medicine. You are invited to contact Dr. George M. Briggs at (briggs@geneseo.edu) or Dr. Robert W. O'Donnell at SUNY-Geneseo at (odonnell@geneseo.edu) or the Director of Admissions at New York College of Osteopathic Medicine at (516) 686-3747.

3/4 Program with SUNY-Optometry

SUNY-Geneseo and SUNY College of Optometry offer an affiliation program to qualified students where they can receive a B.S. in Biology and a Doctor of Optometry degree in seven years instead of the usual eight. The student attends SUNY at Geneseo for 3 years and then attends the professional program at SUNY College of Optometry. After the first year at SUNY College of Optometry, the student receives his or her baccalaureate degree in biology from SUNY-Geneseo. The O.D. degree is awarded after completing the four years at SUNY College of Optometry. You are invited to contact Dr. Robert W. O'Donnell at SUNY-Geneseo at (odonnell@geneseo.edu) or the Office of Student Affairs at SUNY College of Optometry at (212) 780-5100 or (800) 291-3937 for more details.

3/4 Program with SUNY-Buffalo, School of Dental Medicine

SUNY-Geneseo and the SUNY-Buffalo, School of Dental Medicine offer an affiliation program to qualified students where they can receive a B.S. in Biology and a Doctor of Dental Science degree in seven years instead of the usual eight. The student attends SUNY-Geneseo for 3 years and then attends the professional program at SUNY-Buffalo, School of Dental Medicine. After the first year at SUNY-Buffalo, School of Dental Medicine, the student receives his or her baccalaureate degree in biology from SUNY-Geneseo. The D.D.S. degree is awarded after completing the four years at SUNY-Buffalo, School of Dental Medicine. You are invited to contact Dr. Robert W. O'Donnell at SUNY-Geneseo at (odonnell@geneseo.edu) or the Office of Student Admissions at SUNY Buffalo School of Dental Medicine at (716) 828-2836 for more details.

Preparation for Nursing

Geneseo had negotiated an agreement with the Johns Hopkins School of Nursing for

students to complete one of three options:

- a 3/2 baccalaureate in nursing
- a 3/1 accelerated baccalaureate in nursing
- direct entry to a combined BS to MSN degrees

Students interested in these programs should contact Dr. Jani Lewis in the Biology Department (lewisj@geneseo.edu) for further information.

Early Assurance Program with SUNY-Buffalo, School of Dental Medicine

SUNY-Geneseo and the SUNY-Buffalo, School of Dental Medicine offer a cooperative program to qualified students designed to assure an undergraduate student acceptance into dental school at the end of two years of study. This allows the student to complete a four year undergraduate curriculum without further concern about admission to a D.D.S. program. While there is no major course of study required, the applicant must have completed most of the required pre-dental courses for admission to the SUNY at Buffalo, School of Dental Medicine and must demonstrate both maturity and a high level of motivation for a career in dentistry. You are invited to contact Dr. Robert W. O'Donnell at SUNY-Geneseo, (odonnell@geneseo.edu) or the Office of Student Admissions at SUNY-Buffalo, School of Dental Medicine at (716) 828-2836 for more details.

2/4 Program with SUNY Upstate Medical University

SUNY -Geneseo and SUNY-Upstate Medical University have an agreement to promote the easy transfer of students from Geneseo to the upper division programs of BS in Cardiovascular Perfusion, BS in Cytotechnology, BS in Medical Imaging Sciences, BS in Medical Technology, BS in Radiation Therapy, and BS in Respiratory Care at SUNY-Upstate. Geneseo students who complete all the pre-requisites for their intended program of study and are accepted at Upstate will transfer with full junior status. A special early admissions program (GOLD—Guaranteed Opportunity for Leadership Development) is available for first time college students with a demonstrated commitment to health care, a superior high school record in math and science, and leadership in extracurricular activities. Students will be accepted into one of the upper division programs at SUNY-Upstate during their senior year of high school and into SUNY-Geneseo. Students must complete all the prerequisite courses at Geneseo with grades of B or above in the sciences and a cumulative grade point average of 3.3. You are invited to contact Dr. Jani Lewis at SUNY-Geneseo at (lewisj@geneseo.edu) or the Admissions Office of SUNY-Upstate Medical University (315) 464-4570 for further information.

Plant Sciences

Students interested in concentrating in the plant sciences should select courses from the following: BIOL 215, 311, 361, and 380. Opportunities exist for independent study (BIOL 399) and research (BIOL 382) using the greenhouse, herbarium, and other departmental facilities. In addition, internships with area businesses can become an integral part of a plant science concentration.

Ecology

Students interested in the field of environmental science or ecology should pursue a BS degree and select courses from the following: BIOL 303, 305, 306, 311, 338, 340, 376, 390 (Ecological Techniques). We also recommend students take a course in statistics, such as BIOL 250, Math 360 or Psyc 250. Students also should consider independent research with faculty using laboratory resources including the greenhouse and vivarium and field sites such as Conesus Lake, the Roemer Arboretum, or our 400-acre Research Reserve.

Minor in Biology

20 semester hours in Biology which must include (1) BIOL 116, 117, 119 and (2) BIOL 203 (Ecology); (3) BIOL 271 (Heredity) or BIOL 222 (Genetics); and (4) 2 three-hour Biology Electives (above the 100-level which are available for major credit). Biochemistry may be included for credit toward this minor.