

 FLORIDA ATLANTIC UNIVERSITY	NEW/CHANGE PROGRAM REQUEST Undergraduate Programs	UUPC Approval <u>3-28-22</u> UFS Approval _____ Banner Posted _____ Catalog _____
	Department Biological Sciences College C.E.S. College of Science	
Program Name BA & BS in Biological Sciences BS in Medical Biology	<input type="checkbox"/> New Program <input checked="" type="checkbox"/> Change Program	Effective Date (TERM & YEAR) 202208
Please explain the requested change(s) and offer rationale below or on an attachment <p>The Biology Department has partnered with the Department of Electrical Engineering and Computer Science to develop a proposal for a new, team taught course titled Artificial Intelligence Applications in Biology (IDS 4722) which we are submitting in tandem with this program change proposal. The course has been designed to serve as an upper division elective for biology majors enrolled in the BA in Biological Sciences, the BS in Biological Sciences, and/or the BS in Medical Biology. With this program change proposal, we wish to update our catalog entry to add this new course, assuming the course is approved, to the elective lists associated with each of these three programs. Please find the proposed updates to the catalog entry attached.</p>		
Faculty Contact/Email/Phone Michelle Cavallo/mcavallo@fau.edu/7-3465	Consult and list departments that may be affected by the change(s) and attach documentation	
Approved by Department Chair <u>SL Mitton</u> College Curriculum Chair <u>[Signature]</u> College Dean <u>[Signature]</u> UUPC Chair <u>Elyn Williams</u> Undergraduate Studies Dean <u>Dan Meeroff</u> UFS President _____ Provost _____	Date 3-17-22 3/18/22 <u>3/18/22</u> 3-28-22 3-28-22	

Email this form and attachments to mjenning@fau.edu one week before the UUPC meeting so that materials may be viewed on the UUPC website prior to the meeting.

Biological Sciences

Faculty:

Milton, S., Chair; Anderson, R.; Baronas-Lowell, D.; Baldwin, J.; Binnering, D.; Brooks, W. R.; Esiobu, N.; Frazier, E.; Godenschwege, T.; Hartmann, J. X.; Hughes, C.; Jia, K.; Kajiura, S.; Koch-Rose, M.; Kumi-Diaka, J.; Lovelace, M.; Lyons, H. J.; Macleod, G.; McCoy, M.; Murphey, R.; Narayanan, R.; Noonburg, E.; Owen, D.; Salmon, M.; Theisen, T.; Weissbach, H., Emeritus; Wyneken, J.; Zhang, X-H.

The Department of Biological Sciences offers undergraduate degree programs leading to the Bachelor of Arts (B.A.) degree and Bachelor of Science (B.S.) degree. A grade of "C-" or better (unless otherwise noted in the course description) is required in all biology AND cognate courses taken as part of the requirements for an undergraduate degree in Biological Sciences. However, students must maintain a "C" average in departmental major courses.

The department also offers a Bachelor of Science in Medical Biology, an Honors Program, the [FAU Max Planck Honors Program](#), a minor in Biological Sciences, and an undergraduate certificate program in Biotechnology. A Bachelor of Science (B.S.) in Neuroscience and Behavior is offered jointly with the Department of Psychology. This major is detailed under the [Psychology Department section](#).

Master's-level degree programs include the Master of Science (M.S.), the Master of Science in Teaching (M.S.T.), and a [Professional Science Master's Degree in Business Biotechnology](#).

Two combined programs are also available. In one, students earn a B.S./M.S. in Biological Sciences and in the other, a [B.S. in Biological Sciences and an M.S. in Environmental Science](#).

Recency of Undergraduate Credits Transfer Policy

No credits more than 10 years old may be transferred into or applied to an FAU Biology undergraduate program. Any credits that are transferred in are considered earned in the first semester of enrollment at FAU.

[Link to Bachelor of Science Program](#)

[Link to Bachelor of Science with Major in Medical Biology Program](#)

[Link to Additional Undergraduate Offerings](#)

[Link to Combined Programs](#)

[Link to Master's Programs](#)

Bachelor of Arts with Major in Biological Sciences

(Minimum of 120 credits required)

The Bachelor of Arts (B.A.) degree is intended to provide maximum flexibility for students pursuing study in interdisciplinary areas such as environmental science or secondary school teaching. In addition to the University and College degree requirements, students seeking a Bachelor of Arts degree in Biological Sciences must complete the following core requirements. All degree programs require a total of 120 credits, 45 of which must be upper-division credits.

Prerequisite Coursework for Transfer Students

Students transferring to Florida Atlantic University must complete both lower-division requirements (including the requirements of the Intellectual Foundations Program) and requirements for the college and major. Lower-division requirements may be completed through the A.A. degree from any Florida public college, university or community college or through equivalent coursework at another regionally accredited institution. Before transferring and to ensure timely progress toward the baccalaureate degree, students must also complete the prerequisite courses for their major as outlined in the [Transition Guides](#).

All courses not approved by the Florida Statewide Course Numbering System that will be used to satisfy requirements will be evaluated individually on the basis of content and will require a catalog course description and a copy of the syllabus for assessment.

Core Requirements (40-41 credits)		
Biological Principles and Lab	BSC 1010, 1010L	4
Biodiversity and Lab	BSC 1011, 1011L	4
General Chemistry 1	CHM 2045	3
General Chemistry 1 Lab	CHM 2045L	1
General Chemistry 2	CHM 2046	3
General Chemistry 2 Lab	CHM 2046L	1
Organic Chemistry 1	CHM 2210	3
Organic Chemistry 2	CHM 2211	3
Methods of Calculus	MAC 2233	3
Experimental Design and Statistical Inference	PSY 3234	3
Physical Science	PSC 2121	3
Select four of the courses below (Additional courses selected from this category beyond the four courses may be applied toward the elective requirement.)		
One course in Physiology***		4-5
Genetics	PCB 3063	4
Cell Biology	PCB 3023	3
Principles of Ecology	PCB 4043	3
Evolution	PCB 3674	3
***Students who select the "One course in Physiology" option above may fulfill this option by choosing one of the below course/lab combinations		
Principles of Plant Physiology and Lab	BOT 4503, 4503L	4
Comparative Animal Physiology and Lab	PCB 4723, 4723L	4
Vertebrate Structure Development and Evolution and Lab	ZOO 4690, 4690L	5
Human Morphology and Function 1 and Lab	PCB 3703, 3703L	4
Human Morphology and Function 2 and Lab	PCB 3704, 3704L	4

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Biology Electives Select a minimum of 12 upper-division credits from the list below		
Vascular Plant Anatomy and Lab	BOT 3223, 3223L	4
Marine Botany and Lab	BOT 4404, 4404L	4
Plant Cell Biology	BOT 4542	3
Plant Biotechnology	BOT 4734C	3
Life of a Biologist*	BSC 2844	1
Conservation Biology	BSC 3052	3
Introduction to Biological Research	BSC 3453	1

Biological Research Writing	BSC 3481	2
Molecular Genetics of Aging	BSC 4022	3
Laboratory Methods in Biotechnology	BSC 4403L	3
Concepts in Bioinformatics	BSC 4434C	3
Biology of Cancer	BSC 4806	3
Directed Independent Study**	BSC 4905	1-3
Directed Independent Research in Biological Sciences**	BSC 4910	0-3
Honors Research	BSC 4917	3
Honors Thesis	BSC 4918	3
Special Topics	BSC 4930	1-3
Comparative Animal Behavior	CBH 4024	3
Critical Thinking in Environmental Science	EVS 4021	3
Artificial Intelligence Applications in Biology	IDS 4722	3
General Microbiology and Lab	MCB 3020, 3020L	4
Medical Bacteriology	MCB 4203	3
Virology	MCB 4503	3
Microbial Ecology	MCB 4603	3
Marine Biodiversity and Lab	OCB 4032, 4032L	4
Marine Biology and Lab	OCB 4043, 4043L	4
Marine Microbiology and Molecular Biology and Lab	OCB 4525, 4525L	4
Marine Ecology and Lab	OCB 4633, 4633L	4
Marine Science	OCE 4006	3
Issues in Human Ecology	PCB 3352	3
Genetics Lab	PCB 4067L	3
Immunology	PCB 4233	3
Freshwater Ecology and Lab	PCB 4301, 4301L	4
Molecular Genetics	PCB 4522	3
Genes and Development	PCB 4594	3
Cellular Neuroscience and Disease	PCB 4842	3
Practical Cell Neuroscience	PCB 4843C	3
Vertebrate Zoology and Lab*	ZOO 2303, 2303L	4
Invertebrate Zoology and Lab*	ZOO 3205, 3205L	5
Introduction to Animal Locomotion	ZOO 4373	3
Functional Biology of Marine Animals and Lab	ZOO 4402, 4402L	4
Ornithology and Lab	ZOO 4472, 4472L	4

Principles of Human Neuroanatomy	ZOO 4742	3
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Note: PHY 2053 may be substituted for PSC 2121.

* Although they are biology electives, Life of a Biologist (BSC 2844) and Vertebrate Zoology (ZOO 2303, 2303L) are not upper-division courses and, as such, do not fulfill the minimum biology upper-division elective requirement of 12 credits.

** Students may enroll in a maximum of 3 research credits within a single semester.

Note: No more than a total of 5 non-graded (S/U) credits may be used to fulfill biology degree program requirements. Approved non-graded biology electives include:

Directed Independent Study (example: CMBB Research Seminar for 1 credit)	BSC 4905	1-3
Directed Independent Research in Biological Sciences	BSC 4910	0-3
Science Internship	IDS 3941	1-3

Note: CMBB Research Seminar is a 1-credit semester-long course. No more than 2 credits (2 semesters) of CMBB Research Seminar may be used to fulfill biology degree program requirements.

Note: Biology department approval is required for students wishing to complete the Science Internship for credit. After a student's Science Internship registration request has been processed by the FAU Career Center, the Career Center will communicate directly with the department to request approval on the student's behalf.

Note: Students wishing to participate in Medical Shadowing Internship should not enroll in the Science Internship. They should instead enroll in Medical Shadowing Internship (IDS 3940). The Medical Shadowing Internship course cannot be used to fulfill biology degree program requirements.

Students can find detailed flight plan information and Intellectual Foundations Program checklists for biology majors through [University Advising Services](#).

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Environmental Sciences Focus

Complete all of the above and the following electives.

Biology Elective		
Issues in Human Ecology	PCB 3352	3 or
Environment and Society	EVR 2017	3

General Electives		
Macroeconomics Principles	ECO 2013	3
Microeconomics Principles	ECO 2023	3
Environmental Economics	ECP 4302	3
Environmental Ethics	PHI 3640	3

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Bachelor of Science with Major in Biological Sciences

(Minimum of 120 credits required)

The Bachelor of Science (B.S.) degree is recommended for students planning to be professional biologists in industry or governmental service, for graduate work in the biological sciences and for students planning careers in medicine, dentistry or veterinary medicine. In addition to the University and College degree requirements, students seeking a Bachelor of Science degree in Biological Sciences must complete the following degree requirements.

Prerequisite Coursework for Transfer Students

Students transferring to Florida Atlantic University must complete both lower-division requirements (including the requirements of the Intellectual Foundations Program) and requirements for the college and major. Lower-division requirements may be completed through the A.A. degree from any Florida public college, university or community college or through equivalent coursework at another regionally accredited institution. Before transferring and to ensure timely progress toward the baccalaureate degree, students must also complete the prerequisite courses for their major as outlined in the [Transition Guides](#).

All courses not approved by the Florida Statewide Course Numbering System that will be used to satisfy requirements will be evaluated individually on the basis of content and will require a catalog course description and a copy of the syllabus for assessment.

Core Requirements (47-49 credits)		
Biological Principles and Lab	BSC 1010, 1010L	4
Biodiversity and Lab	BSC 1011, 1011L	4
General Chemistry 1 and Lab	CHM 2045, 2045L	4
General Chemistry 2 and Lab	CHM 2046, 2046L	4
Organic Chemistry 1	CHM 2210	3
Organic Chemistry 2	CHM 2211	3
Methods of Calculus	MAC 2233	3 or
Calculus with Analytic Geometry 1	MAC 2311	4
College Physics 1	PHY 2053	4 or
General Physics 1	PHY 2048	4
College Physics 2	PHY 2054	4 or
General Physics 2	PHY 2049	4
General Physics 1 Lab	PHY 2048L	1
General Physics 2 Lab	PHY 2049L	1
Experimental Design and Statistical Inference	PSY 3234	3 or
Introduction to Biostatistics	STA 3173	3
Select four of the courses below (Additional courses selected from this category beyond the four courses may be applied toward the elective requirement.)		
One course in Physiology***		4-5
Genetics	PCB 3063	4
Cell Biology	PCB 3023	3
Principles of Ecology	PCB 4043	3
Evolution	PCB 3674	3

***Students who select the "One course in Physiology" option above may fulfill this option by choosing one of the below course/lab combinations		
Principles of Plant Physiology and Lab	BOT 4503, 4503L	4
Comparative Animal Physiology and Lab	PCB 4723, 4723L	4
Vertebrate Structure Development and Evolution and Lab	ZOO 4690, 4690L	5
Human Morphology and Function 1 and Lab	PCB 3703, 3703L	4
Human Morphology and Function 2 and Lab	PCB 3704, 3704L	4

Electives		
Select a minimum of 18 upper-division credits from the list below		
Biochemistry 1	BCH 3033	3
Biochemistry 2 or Biochemistry Lab	BCH 3034 or BCH 3103L	3
Vascular Plant Anatomy and Lab	BOT 3223, 3223L	4
Marine Botany and Lab	BOT 4404, 4404L	4
Plant Cell Biology	BOT 4542	3
Principles of Plant Physiology and Lab	BOT 4503, 4503L	4
Plant Biotechnology	BOT 4734C	3
Life of a Biologist*	BSC 2844	1
Conservation Biology	BSC 3052	3
Introduction to Biological Research	BSC 3453	1
Biological Research Writing	BSC 3481	2
Molecular Genetics of Aging	BSC 4022	3
Laboratory Methods in Biotechnology	BSC 4403L	3
Concepts in Bioinformatics	BSC 4434C	3
Biology of Cancer	BSC 4806	3
Directed Independent Study**	BSC 4905	1-3
Directed Independent Research in Biological Sciences**	BSC 4910	0-3
Honors Research	BSC 4917	3
Honors Thesis	BSC 4918	3
Special Topics	BSC 4930	1-3
Comparative Animal Behavior	CBH 4024	3
Organic Chemistry Lab	CHM 2211L	2
Critical Thinking in Environmental Science	EVS 4021	3
Artificial Intelligence Applications in Biology	IDS 4722	3
General Microbiology and Lab	MCB 3020, 3020L	4

Medical Bacteriology	MCB 4203	3
Virology	MCB 4503	3
Microbial Ecology	MCB 4603	3
Marine Biodiversity and Lab	OCB 4032, 4032L	4
Marine Biology and Lab	OCB 4043, 4043L	4
Marine Microbiology and Molecular Biology and Lab	OCB 4525, 4525L	4
Marine Ecology and Lab	OCB 4633, 4633L	4
Marine Science	OCE 4006	3
Issues in Human Ecology	PCB 3352	3
Genetics Lab	PCB 4067L	3
Immunology	PCB 4233	3
Freshwater Ecology and Lab	PCB 4301, 4301L	4
Molecular Genetics	PCB 4522	3
Genes and Development	PCB 4594	3
Cellular Neuroscience and Disease	PCB 4842	3
Practical Cell Neuroscience	PCB 4843C	3
Biological Bases of Behavior	PSB 3002	3
Vertebrate Zoology and Lab*	ZOO 2303, 2303L	4
Invertebrate Zoology and Lab*	ZOO 3205, 3205L	5
Introduction to Animal Locomotion	ZOO 4373	3
Functional Biology of Marine Animals and Lab	ZOO 4402, 4402L	4
Ornithology and Lab	ZOO 4472, 4472L	4
Principles of Human Neuroanatomy	ZOO 4742	3

* Although they are biology electives, Life of a Biologist (BSC 2844) and Vertebrate Zoology (ZOO 2303, 2303L) are not upper-division courses and, as such, do not fulfill the minimum biology upper-division elective requirement of 12 credits.

** Students may enroll in a maximum of 3 research credits within a single semester.

Note: No more than a total of 5 non-graded (S/U) credits may be used to fulfill biology degree program requirements. Approved non-graded biology electives include:

Directed Independent Study (example: CMBB Research Seminar for 1 credit)	BSC 4905	1-3
Directed Independent Research in Biological Sciences	BSC 4910	0-3

Seminar	BSC 4932	1
Directed Independent Research in Environmental Science	EVS 4916	0-3
Science Internship	IDS 3941	1-3

Note: CMBB Research Seminar is a 1-credit semester-long course. No more than 2 credits (2 semesters) of CMBB Research Seminar may be used to fulfill biology degree program requirements.

Note: Biology department approval is required for students wishing to complete the Science Internship for credit. After a student's Science Internship registration request has been processed by the FAU Career Center, the Career Center will communicate directly with the department to request approval on the student's behalf.

Note: Students wishing to participate in Medical Shadowing Internship should not enroll in the Science Internship. They should instead enroll in Medical Shadowing Internship (IDS 3940). The Medical Shadowing Internship course cannot be used to fulfill biology degree program requirements.

Students can find detailed flight plan information and Intellectual Foundations Program checklists for biology majors through [University Advising Services](#).

Honors in the Major—Biological Sciences

Eligible undergraduate students may apply to participate in the Department of Biological Sciences' Honors in the Major program. There are two paths to attaining Honors in the Major. Students who fulfill all requirements associated with one of the biology honors pathways successfully and have an overall GPA of 3.2 or greater at the time of degree conferral will receive a designation of Honors in the Major on their transcripts. The transcript designations, "Honors in Biological Sciences—Research Thesis" or "Honors in Biological Sciences—Research," will mark participation in the one of the two paths.

Honors in Biological Sciences—Research Thesis

The Department of Biological Sciences offers an Honors Thesis Program that recognizes research accomplishments of talented undergraduates. Eligible students must have a minimum of 20 credits in biology and an overall GPA of 3.2. Students usually begin the program in their junior year and conduct independent, supervised research during their junior and senior years. A written paper and a seminar describing the results of their research are required in the senior year. Interested students should contact the faculty member whose research interests are closest to those the student wishes to pursue.

Honors in Biological Sciences—Research

The Department of Biological Sciences offers an Honors Research Program that recognizes research accomplishments of talented undergraduates. Eligible students must have a minimum of 20 credits in biology and an overall GPA of 3.2. Students usually begin the program in their junior year and conduct independent, supervised research during their junior and senior years. Submission of a grant proposal is required no later than the second semester of the junior year. Presentation of a poster or seminar at a local, regional, national or international research conference/symposium describing the results of the research is required in the senior year. Interested students should contact a faculty member whose research interests are closest to those the student wishes to pursue. Visit the [website](#) for more information.

The FAU Max Planck Honors Program (MPHP)

Eligible College of Science majors in Biology, Psychology, and Neuroscience and Behavior may apply to participate in this Jupiter-specific honors program for undergraduates. For students pursuing the MPHP, 3 to 6 of the elective credits in their individual program must be applied toward the requirements of the MPHP. These include successful completion of a Capstone experience (1 to 3 credits) and three different MPHP Enrichment courses (1 credit each) from those listed below. A minimum grade of "B" must be achieved in graded courses ("S" in non-graded courses) among these exclusive MPHP course options for the credits to count toward the requirements of the MPHP. Visit the [MPHP website](#) to apply.



Biological Sciences Minor

A minor in Biological Sciences consists of a minimum of 19 credits in biology courses, to include Biodiversity with Lab (BSC 1011, 1011L), Biological Principles with Lab (BSC 1010, 1010L), Principles of Ecology (PCB 4043) and additional courses at the 3000 level or above, at least one of which must be a lab course. Of the 19 credits, at least 15 must be earned from FAU. All courses must be completed with a grade of "C-" or better.

Biotechnology Certificate

The certificate program in Biotechnology is designed to provide undergraduate students with the necessary foundations for a career in biotechnology in conjunction with their academic major. Particular emphasis is placed on application of biotechnology to studies in botany, biochemistry, environmental sciences, marine biology, microbiology, medicine or pharmacology.

To enter the program, a student must have 15 credits of work at a senior institution with a minimum GPA of 2.5 and a year each of general biology, general chemistry, general physics and mathematics through one semester of calculus. A grade of "C-" or better must be attained in each course in biology, chemistry and biotechnology, and an overall and upper-division GPA of at least 2.5 is required at graduation. Students must also earn a "B-" or better in the following laboratory courses: BCH 3103L, BSC 4403L and MCB 3020L.

Students receiving a bachelor's degree in the Department of Biological Sciences or the Department of Chemistry and Biochemistry will meet the requirements for certification by completing the courses listed below, as well as their prerequisites. Students in other departments should meet with a biotechnology advisor to determine eligibility and requirements for this certification program.

Biochemistry Lab	BCH 3103L	3
Laboratory Methods in Biotechnology	BSC 4403L	3
General Microbiology	MCB 3020	3
General Microbiology Lab	MCB 3020L	1
Genetics	PCB 3063	4
Total Credits		14

Secondary Education Program

A program leading to teacher certification in biology is available through the Department of Teaching and Learning in the College of Education.

Bachelor of Science with Major in Medical Biology

(Minimum of 120 credits required)

The Bachelor of Science (B.S.) with Major in Medical Biology program provides undergraduate preparation for students interested in pursuing professional degrees in medicine, dentistry, pharmacy, veterinary medicine or graduate degrees in the biomedical sciences. In addition to University and college degree requirements, students seeking a B.S. with Major in Medical Biology must complete the following requirements.

Prerequisite Coursework for Transfer Students

Students transferring to Florida Atlantic University must complete lower-division requirements (including the requirements of the [Intellectual Foundations Program](#)) and requirements for the college and major. Lower-division requirements may be completed through the A.A. degree from any Florida public college, university or state college or through equivalent coursework at another regionally accredited institution. Before transferring and to ensure timely progress toward the baccalaureate degree, students must also complete the prerequisite courses for their major as outlined in the [Transition Guides](#).

All courses not approved by the Florida Statewide Course Numbering System that will be used to satisfy requirements will be evaluated individually on the basis of content and will require a catalog course description and a copy of the syllabus for assessment.

Core Requirements (63-64 credits, 25-26 upper-division credits)		
Biochemistry 1	BCH 3033	3
Biological Principles and Lab	BSC 1010, 1010L	4
Biodiversity and Lab	BSC 1011, 1011L	4
General Chemistry 1 and Lab	CHM 2045, 2045L	4
General Chemistry 2 and Lab	CHM 2046, 2046L	4
Organic Chemistry 1	CHM 2210	3
Organic Chemistry 2 and Lab	CHM 2211, 2211L	3
Life Science Calculus or	MAC 2241	4 or
Calculus with Analytic Geometry 1	MAC 2311	4
General Microbiology and Lab	MCB 3020, 3020L	4
Genetics	PCB 3063	4
Cell Biology	PCB 3023	3
Human Morphology and Function 1 and Lab or	PCB 3703, 3703L	4 or
Vertebrate Structure Development and Evolution and Lab	ZOO 4690, 4690L	5
Human Morphology and Function 2 and Lab or	PCB 3704, 3704L	4 or
Comparative Animal Physiology and Lab	PCB 4723, 4723L	4
College Physics 1 or	PHY 2053	3 or
General Physics 1	PHY 2048	3
College Physics 2 or	PHY 2054	4 or
General Physics 2	PHY 2049	4
General Physics 1 Lab	PHY 2048L	1
General Physics 2 Lab	PHY 2049L	1
Experimental Design and Statistical Inference or	PSY 3234	3 or
Introduction to Biostatistics	STA 3173	3

Electives		
Select a minimum of 12 upper-division credits from the list below		
Biochemistry 2 or Biochemistry Lab	BCH 3034 or BCH 3103L	3
Molecular Genetics of Aging	BSC 4022	3
Laboratory Methods in Biotechnology	BSC 4403L	3
Biology of Cancer	BSC 4806	3
Directed Independent Research in Biological Sciences ***	BSC 4910	0-3
Special Topics	BSC 4930	1-3
Comparative Animal Behavior	CBH 4024	3

Introduction to Drug Design	CHM 4273	3
Structural Biochemistry	CHM 4350	3
Directed Independent Study***	CHM 4905	1-4
Senior Seminar	CHM 4930	1
Artificial Intelligence Applications in Biology	IDS 4722	3
Medical Bacteriology	MCB 4203	3
Virology	MCB 4503	3
Evolution	PCB 3674	3
Principles of Ecology	PCB 4043	3
Genetics Lab	PCB 4067L	3
Immunology	PCB 4233	3
Molecular Genetics	PCB 4522	3
Genes and Development	PCB 4594	3
Cellular Neuroscience and Disease	PCB 4842	3
Practical Cell Neuroscience	PCB 4843C	0-3
Directed Independent Study***	PCB 4905	1-3
Directed Independent Research***	PCB 4915	1-3
Directed Independent Research***	PCB 4916	0-3
Special Topics	PCB 4930	1-8

***Students may enroll in a maximum of 3 research credits within a single semester.

Note: No more than a total of 5 non-graded (S/U) credits may be used to fulfill biology degree program requirements.

Directed Independent Research in Biological Sciences	BSC 4910	0-3
Directed Independent Study***	CHM 4905	1-4
Science Internship	IDS 3941	1-3
Directed Independent Study***	PCB 4905	1-3
Directed Independent Research***	PCB 4915	1-3
Directed Independent Research***	PCB 4916	0-3

Note: Biology department approval is required for students wishing to complete the Science Internship for credit. After a student's Science Internship registration request has been processed by the [FAU Career Center](#), the Career Center will communicate directly with the department to request approval on the student's behalf.

Note: Students wishing to participate in Medical Shadowing Internship should not enroll in the Science Internship. They should instead enroll in Medical Shadowing Internship (IDS 3940). The Medical Shadowing Internship course cannot be used to fulfill biology degree program requirements.

Students can find detailed flight plan information and Intellectual Foundations Program checklists for biology majors through [University Advising Services](#).