

Transfer Manual for Microbiology and Cell Science

TABLE OF CONTENTS

Academic Advising Personnel – Department.....	2
College of Agricultural and Life Sciences	
Undergraduate Degree Requirements.....	3
General Education Requirements.....	4
College of Liberal Arts and Sciences	
Undergraduate Degree Requirements.....	6
General Education Requirements.....	8
Transfer Student Two Year Graduation Plan.....	9
Department Core and Elective Requirements.....	10
Undergraduate Course Descriptions.....	15
Out of Department Courses to Fulfill the Department Elective Requirement.....	18
Advanced Labs to Fulfill the Requirement.....	19
Suggested General Education and Gordon Rule Courses.....	21
Pre-Health Professions Information.....	23
Pre-Graduate School Information.....	28
Graduating with Honors.....	29
MCB 4905 Undergraduate Research Information.....	31
Transfer Student Registration Recommendations.....	32

MICROBIOLOGY AND CELL SCIENCE

Academic Advising Personnel

All appointments and walk in hours are accessible at our online advising appointment web site: Please go to this link <http://microcell.ufl.edu/advising1> and schedule an appointment and access the advising schedule at your convenience. Your advisor is:

- Christine “Chris” Holyoak, cholyoak@ufl.edu

Dr. William Gurley is the Undergraduate Coordinator, wgurley@ufl.edu. Please email him for office hours and appointment.

The advising office is located in Building 981 on Museum Rd. across from the Soccer Practice Field and south of the Baughman Center on Lake Alice. Come to Room 1051, main office.

Please arrive on time for scheduled appointments. It is recommended you arrive at least five minutes prior to your scheduled appointment time. If you are late for an appointment, we cannot guarantee you will be seen and may be asked to reschedule at another time.

If you must cancel or reschedule an appointment within 24 hours of your appointment time, please do so via the online “Advising Appointment” screen at the department home page. No shows will not be permitted to reschedule and will be required to come in for walk-in advising only.

It is a 15-minute bus trip from the heart of the campus to the microbiology building. Please allow extra time to arrive for your scheduled appointment. Parking is extremely limited and restricted to “Orange” decals only.

COLLEGE OF AGRICULTURE AND LIFE SCIENCES

Undergraduate Degree Requirements

- Minimum of 120 credit hours.
- Minimum 2.5 math/science grade point average in all required math and science sequences.
- C or higher required in all critical tracking and microbiology core and elective courses.
- Minimum 2.0 grade point average overall in all work attempted at the University of Florida. In addition, students must maintain a cumulative 2.0 GPA for all work attempted in upper division which encompasses all courses completed after 60 hours.
- The last 30 hours applied to the degree must be completed at the University of Florida.
- Fulfillment of all university/college general education, Gordon Rule, etc. requirements.
- The College of Agricultural and Life Sciences requires 3 credits in oral communication, 3 credits in written communications, and a course in economics.

The following courses offered at the University of Florida can be utilized to satisfy the college requirements:

ORAL COMMUNICATION REQUIREMENT

3 credits required – select one of the following:

AEE 3030C	Effective Oral Communication, 3 credits
SPC 2608	Introduction to Public Speaking, 3 credits

WRITTEN COMMUNICATION REQUIREMENT

3 credits required – select one of the following:

AEE 3033C	Writing for Agriculture and Natural Resources
ENC 2210	Technical Writing and Business Communication
ENC 3254	Professional Communication (contact Eng. Dept.)
ENC 3310	Advanced Exposition
ENC 3312	Advanced Argumentative Writing
MMC 2100	Writing for Mass Communication

ECONOMICS REQUIREMENT

3 credits required – select one of the following:

ECO 2023	(GE-S/B) Microeconomics, 4 credits
ECO 2013	(GE-S/B) Macroeconomics, 4 credits
AEB 3103	Principles of Food Resource Economics, 4 credits
AEB 2014	Current Economic Issues, Food and You, 3 credits

COLLEGE OF AGRICULTURAL AND LIFE SCIENCES

University General Education Requirements – 36 Credits

COMPOSITION – C – 3 credit hours

HUMANITIES – H – 9 credit hours

SOCIAL AND BEHAVIORIAL SCIENCE – S – 6 credit hours

OR

HUMANITIES – H – 6 credit hours

SOCIAL AND BEHAVIORIAL SCIENCE – S – 9 credit hours

MATHEMATICAL SCIENCES – M – 6 credit hours

Four (4) of these credits will be fulfilled with MAC 2311, Calculus 1, with the natural progression through the Microbiology curriculum. Pre-calculus, College Algebra, Trigonometry, Calculus 2 or Statistics can be utilized to fulfill the remaining credits.

PHYSICAL AND BIOLOGICAL SCIENCES – P/B – 12 credit hours

These credits will be fulfilled with the natural progression through the Microbiology curriculum.

NOTE: Courses that indicate fulfillment of more than one General Education requirement can only be utilized to fulfill one of the requirements. For example, 3 credit ENC 1101 Expository and Argumentative Writing fulfills 6,000 words of Gordon Rule, Communication and either 3 credits of a Composition C or 3 credits of Humanities H – NOT a C and an H.

INTERNATIONAL/DIVERSITY FOCUS – 6 credits

3 credits - international focus (N) and 3 credits - diversity focus (D).

GORDON RULE COMMUNICATION – 24,000 words

Students must complete designated Gordon Rule course work with a grade of C or better, as well as fulfill minimum of 24,000 words. The Schedule of Courses will identify courses, sections, and the amount of Gordon Rule words awarded (2,000 – 4,000 – 6,000). Gordon Rule courses taken to fulfill a Gordon Rule requirement cannot be taken with the S/U option.

GORDON RULE COMPUTATION - 6 credits

Students must complete designated Gordon Rule computation course work with a grade of C or better. Four (4) of these credits will be fulfilled with MAC 2311, Calculus 1, with the natural progression through the Microbiology curriculum. Pre-calculus, College Algebra, Trigonometry, Calculus 2 or Statistics can be utilized to fulfill the remaining credits.

Students transferring to the University of Florida with an AA degree will have satisfied all University requirements. A maximum of 60 credit hours can be attributed toward fulfillment of the 120 credit hour degree requirement from a community or junior college.

Any course offered in another college or department at any level, will fulfill the general elective credit hour requirements. Course selection is determined by the student's goals. Inquires pertaining to AP or IB credit and substitution of courses taken at other institutions to satisfy general education and/or college requirements should be referred to:

Office of the Associate Dean for Academic Programs
College of Agricultural and Life Sciences
2002 McCarty Hall, Room 2002
Telephone (352) 392-2251

Refer to the *University of Florida Undergraduate Catalog* and college website for additional information on University or College of Agricultural and Life Sciences requirements.

COLLEGE OF LIBERAL ARTS AND SCIENCES

Undergraduate Degree Requirements

- Minimum 120 credit hours
- Minimum 2.0 grade point average (GPA) overall in all work attempted at the University of Florida.
- Minimum 2.5 math/science GPA required in all math and science sequences.
- A “C” or higher in all required Microbiology core and elective courses.
- Maintain a cumulative 2.0 GPA for all work attempted in upper division which encompasses ALL courses completed after 60 credit hours.
- The last 30 hours applied to the degree must be completed at the University of Florida.
- Fulfillment of all university/college general education, Gordon Rule, etc. requirements.
- Foreign language requirement – Please refer to the *University of Florida Undergraduate Catalog* or contact and academic advisor at the Academic Advising Center for detailed information concerning fulfillment of this requirement.

College electives are defined as courses taken in departments other than Microbiology and Cell Science. A student’s program must include 18 credit hours of electives at the 3000 level or above outside of the Department of Microbiology and Cell Science. The following courses are required for Microbiology majors to satisfy their degree requirements and will assist in fulfilling the College of Liberal Arts and Sciences 3000 level elective credits:

PHY 2054	Physics 2	4 Credits
PHY 2054 Lab	Physics 2Lab	1 Credit
CHM 2211 or CHM 3217	Organic Chemistry One Semester Organic Chemistry	3 Credits 4 Credits
CHM 2211 Lab	Organic Chemistry Lab	2 Credits
BCH 4024 or CHM 3218	Intro to Biochemistry and Molecular Biology Bioorganic Chemistry	4 Credits
Quantitative Requirement	CHM 3120 and CHM 3120L or STA 2023 or CGS 3460 or PCB 3063 Or PCB 4592C Or Bioinformatics	3-4 credits

Please note that Physics II and Lab and Organic Chemistry II and Lab are, in fact, 2000 level courses and not 3000 level. The College of Liberal Arts and Sciences, however, recognizes these courses and accepts them as fulfillment of 3000 level elective course work.

Inquires pertaining to AP or IB credit, substitution of courses taken at other institutions to satisfy general education and/or college requirements, or the college foreign language requirements, should be referred to an academic advisor located at:

The Office of Academic Advising
<http://advising.ufl.edu>
College of Liberal Arts and Sciences
100 Academic Advising Center, Room 100
Farrior Hall
Telephone (352) 392-1521

Please refer to the *University of Florida Undergraduate Catalog* and college web site for additional information on University or the College of Liberal Arts and Sciences requirements.

COLLEGE OF LIBERAL ARTS AND SCIENCES

University General Education Requirements – 39 Credits

COMPOSITION – C – 6 credit hours

HUMANITIES – H – 9 credit hours

SOCIAL AND BEHAVIORAL SCIENCE – S – 9 credit hours

MATHEMATICAL SCIENCES – M – 6 credit hours

Four (4) of these credits will be fulfilled with MAC 2311, Calculus 1, with the natural progression through the Microbiology curriculum. Pre-calculus, College Algebra, Trigonometry, Calculus 2 or Statistics can be utilized to fulfill the remaining credits.

PHYSICAL AND BIOLOGICAL SCIENCES – P/B – 12 credit hours

These credits will be fulfilled with the natural progression through the Microbiology curriculum.

NOTE: Courses that indicate fulfillment of more than one general education requirement can only be utilized to fulfill one of the requirements. For example, 3 credit ENC1101, Expository and Argumentative Writing, fulfills 6,000 words of Gordon Rule-Communication and either 3 credits of a Composition C or 3 credits of Humanities H, NOT a C and an H.

INTERNATIONAL/DIVERSITY FOCUS – 6 credit hours

3 credits - international focus (N) and 3 credits - diversity focus (D).

GORDON RULE COMMUNICATIONS –24,000 words

Students must complete designated Gordon Rule course work with a grade of C or better. Students must fulfill a minimum of 24,000 words. The Schedule of Courses will identify courses, sections and the amount of Gordon Rule words awarded (2,000-4,000-6,000). Gordon Rule courses taken to fulfill a Gordon Rule requirement cannot be taken with the S/U option.

GORDON RULE COMPUTATION – 6 credits

Four (4) of these credits will be fulfilled with MAC 2311 – Calculus 1 with the natural progression through the Microbiology curriculum. Precalculus, College Algebra, Trigonometry, Calculus 2 or Statistics can be utilized to fulfill the remaining credits. Students must complete designated Gordon Rule computation courses with a grade of C or better.

Students transferring to the University of Florida with an AA degree will have satisfied all university requirements. A maximum of 60 credit hours can be attributed toward fulfillment of the 120 credit hour degree requirement from a community or junior college.

STATE OF FLORIDA COMMUNITY COLLEGE TRANSFER STUDENTS WHO HAVE COMPLETED AN A.A. DEGREE

Two Year Graduation Plan

This plan can be used with an A.A. degree from a Florida Community College that includes the completion of the following course work with a minimum grade of “C” in each course and a cumulative math/science GPA of no less than 2.5.

MAC 2311 Calculus 1
 BSC 2010 Integrated Principles of Biology 1 and BSC 2010 Lab
 BSC 2011 Integrated Principles of Biology 2 and BSC 2011 Lab
 CHM 2045 General Chemistry 1 and CHM 2045 Lab
 CHM 2046 General Chemistry 2 and CHM 2046 Lab

<p>FALL SEMESTER</p> <p>CHM 2210 – Organic Chemistry, 3 PHY 2053 – Physics 1, 4 PHY 2053 – Physics 1 Lab, 1 (We highly recommend you take only two major science courses your first semester at UF.) General Electives –6</p> <p>TOTAL = 14 credits</p>	<p>SPRING SEMESTER</p> <p>CHM 2211 – Organic Chemistry, 3 CHM 2211L – Organic Chemistry Lab, 2 MCB 3023, 3- Principles of Microbiology and MCB 3023L 2 General Elective - 3</p> <p>TOTAL = 13 credits</p>	<p>SUMMER C SEMESTER Session is 12 weeks</p> <p>BCH 4024 – Biochemistry, 4 PHY 2054 – Physics 2, 4 PHY 2054L – Physics 2 Lab, 1</p> <p>TOTAL = 9 credits</p>
<p>FALL SEMESTER</p> <p>MCB 4203 – Pathogens, 3 Quantitative Requirement 3-4 Microbiology Elective, 3 credits <i>choose one:</i></p> <ul style="list-style-type: none"> • ZOO 4232 – Parasitology, 3 • PCB 3134 – Eukaryotic, 3 • MCB 4403 – Prokaryotic, 3 • *CHM 3400 – Physical Chemistry, 3 • PCB 5136L – Techniques Lab, 3 • *HOS 3305 – Intro to PMCB, 3 • *SOS 4303C – Soil Microbial Ecology, 3 • MCB 4934, Bioinformatics. 3 • *HOS 4313C – Lab methods PMCB, 2 <p>General Elective –2-3</p> <p>TOTAL = 12-13 credits</p>	<p>SPRING SEMESTER</p> <p>MCB 4522 – Molecular Genetics, 3 Microbiology Electives, 6 <i>choose two:</i></p> <ul style="list-style-type: none"> • MCB 4503 – Virology, 3 • MCB 5505 – Honors Virology, 3 • PCB 3134 – Eukaryotic Cell Structure, 3 • PCB 4592C-Bacterial Genome Sequencing, 3 • *CHM 3400- Physical Chemistry, 3 • *CHM 4411-Physical Chemistry, 4 • PCB 5235 – Immunology, 3 • *FOS 4222 – Food Microbiology, 3 • Advanced Lab 1-2 <p><i>choose one:</i></p> <ul style="list-style-type: none"> • MCB 4034L-Advanced Lab, 1 • EES 4102L-1 credit • MCB 5303L – Genetics Lab, 2 • *CHM 4111L – Physical Chemistry <p>General Elective –2-3</p> <p>TOTAL – 12-13 credits</p>	<p>Community College transfer students with an A.A. degree are required to complete 60 hours of course work at UF to complete the B.S. degree.</p> <p>TOTAL – 60 credits</p>

* Maximum of 4 out-of-department credits allowed.

MICROBIOLOGY AND CELL SCIENCE

Department Core and Elective Requirements

The Baccalaureate of Science degree in Microbiology and Cell Science may be obtained through either the College of Agricultural and Life Sciences (CAL S) or the College of Liberal Arts and Sciences (CLAS). There is no difference in the major program for students enrolled in either College. The only differences in the degrees are the individual requirements of the colleges. Transfer students are only accepted into this program through application with CAL S.

General Education requirements for mathematics, physical and biological sciences will ordinarily be fulfilled with the appropriate departmental required science foundation course work from the Mathematics, Chemistry and Biological Sciences Departments. Only four (4) credits of MAC 2311, Calculus 1 are required for the Microbiology degree, however, six (6) credits of mathematics course work is required for general education purposes. Students can fulfill the remaining two (2) credits of this requirement with enrollment in any of the following courses: College Trigonometry, College Algebra, Pre-calculus, Calculus II or Statistics. It is highly recommended that you take MAC 2312, Calculus 2, if you plan to attend graduate school.

All students majoring in Microbiology and Cell Science must take MCB 3020 and MCB 3020L at the University of Florida. This course serves as the prerequisite for many required courses in the major.

The table below outlines the departmental requirements in the foundation sciences. Transfer credits from other institutions (e.g., community colleges) are acceptable to substitute for courses listed in this table must be done on an individual basis. For example, the general chemistry sequence at the University of Florida is a 2000 series course level. Many general chemistry courses at community colleges are 1000 level series and are acceptable substitutions. The same applies to other foundation courses. Students must have a minimum cumulative GPA of 2.5 in the courses listed in this table in order to be eligible to enter the microbiology upper division curriculum. All attempts in these courses are included in the computation of this GPA requirement.

MATHEMATICS

MAC 2311, Analytical Geometry and Calculus 1, 4 credits

(MAC 2233, Survey of Calculus is **unacceptable** for fulfillment of this requirement.)

CHEMISTRY

CHM 2045 with Lab, General Chemistry 1 with Lab, 4 credits

CHM 2046 with Lab, General Chemistry and Qualitative Analysis 2 with Lab, 4 credits

BIOLOGY

BSC 2010 with Lab, Integrated Principles of Biology 1 with Lab, 4 credits

BSC 2011 with Lab, Integrated Principles of Biology 2 with Lab, 4 credits

(AGR 3303, Genetics, is a permitted substitute for the BSC2011/2011L sequence. However, it is not recommended for students who intend to apply to medical, dental, pharmacy or other professional programs. The course does, however, fulfill a genetics requirement for the UF College of Veterinary Medicine, but should be taken in addition to the BSC2011/2011L

sequence not as a substitution for the sequence. Other suitable substitutions for the core biology sequences are ZOO 1010C or BOT 1010C. Students with these courses in their background should consult with an academic advisor to ensure that they are properly denoted on their records as fulfillment of the required biology sequence.)

A student fulfilling the basic science foundation course work with the minimum GPA requirement is eligible to major in Microbiology and Cell Science. The following additional course work requirements are required in addition to the Microbiology core and Microbiology elective course requirements.

PHYSICS

PHY 2053/2053L, Physics 1 and Lab, 5 credits

OR

PHY 2048/2048L, Physics 1 and Lab with Calculus, 4 credits

AND

PHY 2054/2054L, Physics 2 and Lab, 5 credits

OR

PHY 2049/2049L, Physics 2 and Lab with Calculus, 4 credits

Students are permitted to enroll in Physics 1 with Calculus and then Physics 2 without Calculus or any other combination desired. The degree program simply requires fulfillment of Physics 1 and Lab and Physics 2 and Lab, and either can be taken with or without Calculus. Note: PHY 2004/2005 are not acceptable physics courses to fulfill this requirement.

ORGANIC CHEMISTRY

CHM 2210, Organic Chemistry, 3 credits

AND

CHM 2211, Organic Chemistry, 3 credits

AND

CHM 2211L, Organic Chemistry Lab, 2 credits

OR

*CHM 3217, One Semester Organic Chemistry, 4 credits

AND

CHM 3218, Bioorganic Chemistry, 4 credits

AND

CHM 2211L, Organic Chemistry Lab, 2 credits

*Note: The Chemistry Department requires students who have enrolled in this course (CHM 3217) to enroll in the second course of this sequence; CHM 3218, Bioorganic Chemistry, 4 credits. Students choosing this course progression will be permitted to utilize the CHM 3218 as fulfillment of the Microbiology core Biochemistry requirement. CHM 3217-3218 covers Organic Chemistry and Biochemistry at an accelerated pace.

The CHM 2211L, Organic Chemistry Lab is required regardless of the manner in which a student chooses to fulfill their Organic Chemistry course requirement.

Quantitative Requirement: Must complete one of the following:

CHM 3120, Analytical Chemistry, 3 credits and CHM 3120L, Analytical Chemistry Lab, 1

OR

STA 2023, Introduction to Statistics, 3 credits

OR

CGS 3460, Computer Programming, 3 credits

OR

PCB 3063, Genetics, 3 credits (Does not replace Core Genetics requirement for this major.)

OR

PCB 4592C, Bacterial Genome Sequencing, 3 credits

OR

MCB 4934 (temporary course number) Bioinformatics, 3 credits

The following is a listing of five Microbiology and Cell Science core course requirements for a total of 15 credits. All Microbiology majors must fulfill the core course requirements. There are multiple course availabilities for the satisfaction of three (3) of the five (5) core course requirements. (F=Fall, S=Spring, SS=Summer)

	COURSE NUMBER	CR	COURSE TITLE	PROFESSOR	SEMESTER OFFERED
1	MCB 3023	3	Principles of Microbiology	Gonzalez & Lorca F,S	F/S/
2	MCB 3023L	2	Principles of Microbiology Lab	Various	F/S/
3	MCB 4304 OR PCB 4522	3 3	Genetics of Microorganisms OR Molecular Genetics	Keyhani Gurley	F S
4	MCB 4203 OR PCB 5235	3 3	Bacterial/Viral Pathogens OR Immunology	Mai Larkin	F S
5	BCH 4024 OR CHM 3218	4 4	Introduction to Biochemistry Bioorganic Chemistry	Allison/Allen Staff	F/S/SS-C F/S/SS-C

The following is a listing of available courses that can be utilized to fulfill 10 credits of microbiology elective course requirements and must include a minimum of 1 credit hour in an advanced lab. (F=Fall, S=Spring, SS=Summer)

COURSE NUMBER	CR	COURSE TITLE	PROFESSOR	SEMESTER OFFERED
MCB 4403	3	Prokaryotic Cell Structure	Maupin	F
MCB 4503	3	General Virology	Maruniak	S
MCB 5505	3	Virology-Honors	Maruniak	S
MCB 4934	3	Bioinformatics	deCrecy	F
PCB 3134	3	Eukaryotic Cell Structure	Mou/Fall – Kang-Spring	F/S
PCB 5235	3	Immunology	Larkin	S

ZOO 4232	3	Parasitology	Kima	F
MCB 4934	3	Astrobiology	Foster	S
PCB 4592C	3	Bacterial Genome Sequencing	Drew/Triplett	S
MCB 5303L	2	Lab for Microbial Genetics	Shanmugam	S
PCB 5136L	3	Techniques in Microbial/Cell Biology	Preston	F
MCB 4034L	1	Microbiology Advanced Lab	Team Taught	F/S

NOTE: One advanced lab course is required in partial fulfillment of the 10-credit elective requirement. Please be sure to check the catalog for the prerequisites for all labs listed below. Several require courses as prerequisites that Microbiology and Cell Science students typically do not take. It is the student's responsibility to make sure they are eligible for a course by fulfilling the required prerequisites.

Registration in MCB 4034L, Advanced Lab

Registration in MCB4034L Lab (Advanced Lab) is departmental controlled due to the limited number of laboratory seats. First priority will be given to Microbiology and Cell Science majors who are completing their last semester of course work and need the lab to fulfill the advanced laboratory requirement. Priority will also be given by the date the form is completed and returned to the microbiology main office secretary. To be eligible for registration, students must complete a registration form in its entirety and return it to room 1052 in the Microbiology and Cell Science building. You can download the form off the advising web or you can pick one up from the secretary in the main office. Students will be notified via email of the final status of their registration in this course.

Students may choose from the following list of out-of-department course work they would like to utilize toward fulfillment of the 10-credit hours of Microbiology electives. Students may use no more than a total of 4 out-of-department credits toward fulfillment of the 10-credit hour requirement. Students will be permitted to enroll in CHM 4411 and CHM 4411L (4 credits and 1 credit, respectively) and allow both the lecture and lab to fulfill Microbiology elective course work but only up to the maximum of 4 credits. Students intending to apply to a M.S. or Ph.D. program should seriously consider enrollment in either the CHM 3400 or CHM 4411 course work and labs. (F=Fall, S=Spring, SS=Summer)

COURSE NUMBER	CR	COURSE TITLE	PROFESSOR	DEPARTMENT OFFERING COURSE	SEMESTER OFFERED
CHM 3400	3	Physical Chemistry – Biology Based	Staff	Chemistry	F, S,SS
CHM 4413L	1	Physical Chemistry Lab	Staff	Chemistry	F, S
CHM 4411	4	Physical Chemistry – Chemistry Based	Staff	Chemistry	F, S, SS
CHM 4411L	1	Physical Chemistry Lab	Staff	Chemistry	F, S, SS
FOS 4222	3	Food Microbiology	Rodrick or Wright	Food Science	S
SOS 4303C	3	Soil Microbial Ecology	Sylvia	Soil Science	F
SOS 5305C	3	Soil Microbial Ecology	Sylvia	Soil Science	F
HOS 3305	3	Introduction to Plant Molecular Biology	Clark	Horticultural Science	F
HOS 4313C	2	Lab Methods PMCB	TBA	Hort. Science	F

CHM 4302L	2	Laboratory in Biochemistry and Molecular Biology	Horenstein	Chemistry	F, S
EES 4102L	1	Environmental Biology Lab	Staff	Environmental Sciences	F,S

The Microbiology and Cell Science Department also offers the following course enrollment opportunities. Enrollment in any of these courses **will not** fulfill any credits toward the Microbiology elective course requirements. To enroll in any of the following courses, please seek additional information from the advising staff in the Microbiology Department.

COURSE NUMBER	CR	COURSE TITLE	SEMESTER OFFERED	CONTACT
MCB 4905	Variable	Undergraduate Research	F, S, SS	Academic Advisor Microbiology Department
MCB 4934	Variable	Special Topics in Microbiology (TA)	F, S, SS	Academic Advisor Microbiology Department

MICROBIOLOGY AND CELL SCIENCE

Undergraduate Course Descriptions

(F=Fall, S=Spring, SS=Summer)

MCB 2000 Microbiology. F, S, SS. Credits: 3.

The role of microorganisms in chemical transformations, disease, public health and agriculture. Fundamental concepts are discussed, followed by both beneficial and harmful actions of microorganisms as they affect our lives. Suitable as a general education science course. Not acceptable for admission to advanced microbiology courses. This course will not be acceptable for the preprofessional curricula relating to the medical/veterinary sciences. (Asghari)

MCB 2000L Microbiology Laboratory. F, S, SS. Credits: 1; *Coreq: MCB 2000.*

Laboratory will demonstrate biochemical transformations and present methods for studying microbial properties. Suitable as a general education science course. Not acceptable for admission to advanced microbiology courses. This course will not be acceptable for the preprofessional curricula relating to the medical/veterinary sciences.

***MCB 3020 Basic Biology of Microorganisms.** F, S, SS. Credits: 3; *Prereq: C or better in BSC 2010, 2010L; BSC 2011, 2011L or AGR 3303; CHM 2210 or CHM 2200.*

For non-microbiology majors, CHM 2200 is not acceptable for credit in the major program. Structure, nutrition and growth of microorganisms; characterization of representative microorganisms and viruses; metabolic properties and introduction to microbial genetics. Required of all majors and students anticipating enrolling in more advanced courses in the Department of Microbiology and Cell Science. (Ogden)

MCB 3023 Principles of Microbiology. F, S. Credits: 3; *Prereq: Microbiology and Cell Science Major, C or better in BSC 2010, 2010L; BSC 2011, 2011L or AGR 3303; CHM 2210 or CHM 2200.*

Introduction to the principles and techniques of microbiology, genetics, taxonomy, biochemistry and ecology of microorganisms. Required of all majors and students anticipating enrolling in more advanced courses in the Department of Microbiology and Cell Science. Understanding the impact of microorganisms on the advancements of the biological sciences (and on all aspects of life on earth) will be reinforced by critical analysis of the primary literature and through use of web-based bioinformatics tools. (F –Spring– Gonzalez and Lorca)

MCB 3023L Laboratory for Principles of Microbiology. F, S, SS. Credits: 2. *Coreq: MCB 3023*

Microbiology and Cell Science majors only and Laboratory techniques on the structure, nutrition, biochemistry, genetics, and growth of microorganisms. Required of all microbiology majors and students anticipating enrolling in more advanced courses in the Department of Microbiology and Cell Science starting spring. Registration will be restricted to Microbiology majors only. (Munro)

MCB 4203 Bacterial and Viral Pathogens. F. Credits: 3; *Prereq: MCB 3020, 3020L with C or better.*

Host parasite relationships in the diseases of man and animals. The characteristics of bacterial and viral pathogens. Basic techniques of isolation and identification. (Mai)

MCB 4034L Advanced Microbiology Laboratory. F, S. Credits: 1; *Prereq: MCB 3020, MCB 3020L and MCB 4203, MCB 4303, PCB 4522 or PCB 5235.*

Application of immunological, molecular biological and microbial techniques to the isolation, identification and characterization of bacteria and viruses. (Staff)

MCB 4304 Genetics of Microorganisms. F. Credits: 3; *Prereq: MCB 3020, 3020L with C or better.* If possible, BCH 4024 or CHM 3218 should be taken before MCB 4304.

Molecular biology of bacterial gene expression, DNA replication, mutation, genetic mapping using plasmids and phages, recombinant DNA mechanisms. (Keyhani)

MCB 4403 Prokaryotic Cell Structure and Function. F. Credits: 3; *Prereq: CHM 2211; MCB 3020, 3020L with C or better. Recommended Prereq: BCH 4024 or CHM 3218.*

An analysis of the cell structure and physiology of bacterial cells. Extensive discussion of cell division and cell growth is provided, along with descriptions of important bacterial cell structures (e.g. cell walls, membranes, flagella, etc.) (Maupin)

MCB 4503 General Virology. S. Credits: 3; *Prereq: MCB 3020, 3020L and MCB 4203 with C or better; Coreq: BCH 4024 or CHM 4207.*

Nature of viruses and mechanisms of infection and replication. Includes bacterial, animal and plant viruses. (Maruniak)

MCB 4905 Undergraduate Research. F, S, SS. Credits: 1 to 4; *Prereq: Permission of undergraduate adviser.* May be repeated up to a maximum of 10 general elective credits.

Individual laboratory research under the close guidance of a selected faculty member.

Enrollment limited to undergraduate majors in Microbiology. Required of, but not limited to, candidates for High Honors or Highest Honors. Not acceptable toward 25 credits of departmental required and elective courses that are required for the major.

MCB 4934 Special Topics in Microbiology and Cell Science. F, S, SS. Credits: 1 to 4; *Prereq: Approval of Undergraduate Coordinator* is required prior to registration.

Supervised literature or historical study on topics of current interest in Microbiology and Cell Science.

MCB 5303L Microbial Genetics and Biotechnology Laboratory. S. Credits: 2; *Prereq: MCB 3020, 3020L, and MCB 4304 or PCB 4522 with C or better. Coreq: The professor will allow students to register if they are taking MCB 4304 or PCB 4522 as coreqs.*

Methods for mutagenesis, gene transfer and genetic mapping, plasmid isolation, restriction enzyme use, phage isolation and preparation. (Shanmugam)

MCB 5458 Energy Transformation in Microorganisms. SS. Credits: 3; *Prereq: MCB 3020, 3020L and CHM 4207 or BCH 4024.*

Energy transformations of dissimilatory and assimilatory processes in microbial energy transformations to low energy technology. (Preston)

MCB 5505 General Virology. S. Credits: 3; *Prereq: Permission of instructor; MCB 3020, 3020L and MCB 4203 with C or better; Coreq: BCH 4024 or CHM 4207.*

Basic information on families of viruses from humans, plants, insects, animals, and bacteria. Medical, clinical, diagnostic, biotechnological, and molecular aspects of these viruses. (Maruniak)

PCB 3134 Eukaryotic Cell Structure and Function. F, S. Credits: 3; *Prereq: With C or better, BSC 2010, 2010L; BSC 2011, 2011L or AGR 3303, and CHM 2210.*

Lecture and discussions in the field of cell biology. Emphasis on the interrelation of structure and function, the regulation of metabolism and the specialized activities of plant and animal cells. (Fall- Mou, Spring –Kang)

PCB 4522 Molecular Genetics. S. Credits: 3; *Prereq: MCB 3020 and MCB 3020L with C or better.*

Molecular biology of prokaryotes and eukaryotes covering the fundamentals of genome organization and gene structure, regulation of transcription, DNA replication and repair, and RNA processing. Also included are discussions of strategies, vectors and applications of genetic engineering in higher plants and animals. (Gurley)

PCB 5136L Techniques in Microbial and Cell Biology. F. Credits: 3; *Prereq: C grade or higher in MCB 3020, 3020L CHM 3120, 3120L.*

The professor will allow students, on an individual basis, to be registered in this lab while taking CHM 3120 as a co-req. A laboratory in experimental bacteriology and cell biology. Emphasis on experimental approaches and techniques used in study of cells and microorganisms. Experiments in microscopy, cell fractionation, metabolism, physiology, genetics, and regulation. (Preston)

PCB 5235 Immunology. S. Credits: 3; *Prereq: C grade or higher MCB 3020, PCB 3134, or BCH 4024.*

Immune system of vertebrate animals. The cellular and molecular events involved in immune responsiveness and resistance to infectious diseases. (Larkin)

ZOO 4232 Human Parasitology. F. Credits: 3; *Prereq: BSC 2010, 2010L; BSC 2011, 2011L or AGR 3303 with C or better.*

Host-parasite relationships of helminth and protozoan diseases important in health sciences and veterinary medicine. (Kima)

ACCEPTABLE OUT-OF-DEPARTMENT COURSES TO FULFILL THE 10-HOUR DEPARTMENT ELECTIVE REQUIREMENT

Maximum of 4 credits out-of-department allowed.

CHM 3400 Physical Chemistry. F, S, SS Credits: 3; Prereq: CHM 3120, MAC 2312, and two semesters of college physics; Coreq: CHM 2210 or CHM 2200.

Properties of gases and liquids, thermodynamics, solutions of nonelectrolytes and electrolytes, acid-base and oxidation-reduction equilibria, with emphasis on biological systems.

CHM 4411 Physical Chemistry. F, S, SS. Credits: 4; Prereq: One year of General Chemistry, one year of physics, Coreq: MAC 2313. Background in analytical and organic chemistry desirable.

Gas laws, kinetic theory. Classical and statistical thermodynamics and applications to solutions, phase equilibria, chemical equilibria and electrochemistry.

FOS 4222 Food Microbiology. S. Credits: 3 to 4; Prereq: MCB 2000 or MCB 2010 or MCB 2013 or MCB 3020 or MCB 3023.

Sources and types of biological contamination and its control during harvesting, processing and storage of foods; food fermentation; biotechnology sanitation; HACCP methods used to examine foods for microbial content.

HOS 3305 Introduction to Plant Molecular Biology. F. Credits: 3; Prereq: BOT 2010C or BSC 2010 or APB 2150. (Clark)

SOS 4303C Soil Microbial Ecology. F. Credits: 3; Prereq: SOS 3022, or permission of instructor. (Silvia)

Occurrence and activities of soil microorganisms and their influence on soil productivity and environmental quality.

CAP 5510 Computer Information Science and Engineering. F. Credits: 3; Prereq: CIS 3020 or equivalent.

Basic concepts of molecular biology and computer science. Sequence comparison and assembly, physical mapping of DNA, phylogenetic trees, genome rearrangements, gene identification, biomolecular cryptology, and molecular structure prediction. (Chen)

PCB 5065 Advanced Genetics. F. Credits: 4; Prereq: AGR 3033 or PCB 3063 or BCH 4024 or 5045.

For graduate students in any life science discipline. Examination of genetic principles including gene and gene function, recombination and linkage; molecular markers, multipoint linkage analysis and positional cloning; quantitative, population, developmental and non-Medalian genetics.

**ACCEPTABLE DEPARTMENT OF MICROBIOLOGY AND CELL SCIENCE
ADVANCED LABS AND OUT-OF-DEPARTMENT ALTERNATIVE LABS TO
FULFILL THE ADVANCED LAB REQUIREMENT**

If the two sections of MCB 4034L, Advanced Lab, in the fall and spring semesters are full, it is not anticipated that additional sections for this lab will be opened. Students who have difficulties registering for one of the labs outside of the Microbiology Department should contact the department in which the course is offered. The Microbiology Department cannot register students for any labs in other departments if they are full or the student is missing a prerequisite. Please contact the appropriate department directly.

MCB 4034L Advanced Microbiology Laboratory. F, S. Credits: 1; Prereq: MCB 3020, MCB 3020L and MCB 4203, MCB 4304, PCB 4522 or PCB 5235.

This lab is currently a departmentally controlled lab. First preference for registration will be given to Microbiology and Cell Science majors who need the course fulfill the advanced lab requirement and are in their last semester of course work. The registration form can be downloaded via the Microbiology and Cell Science web page. Once completed, the form should be turned in to the department secretary in room 1052 in the Microbiology and Cell Science building located on Museum Road.

CHM 4302L Laboratory in Biochemistry and Molecular Biology. F,S. Credits; 2; Prereq: CHM 2211L and either 1)CHM 3218 2) CHM 2211 and CHM 4207, or 3) CHM 2211 and BCH 4024.

An introduction to experimental techniques used in biochemistry, especially those useful in DNA isolation and manipulation, protein purification and enzyme kinetic studies.

CHM 4411L Physical Chemistry Laboratory. F, S, Credits; 2; Prereq: CHM 3120L; Coreq: CHM 4411 or CHM 3417.

A series of laboratory experiments designed to accompany CHM 4411.

CHM 4413L Biophysical Chemistry Lab. F,S. Credits; 2; Prereq: CHM 3120L, CHM 2211L; Coreq: CHM 4413 or CHM 3400.

Laboratory experiments to demonstrate basic concepts of the physical chemistry of biological systems.

EES 4102L Environmental Biology Lab. Semesters vary but usually in spring. Credits: 1; Prereq: none.

PCB 5136L Techniques in Microbial and Cell Biology. F. Credits; 3; Prereq: C grade or higher in MCB 3020L, CHM 3120/3120L. The professor will allow students, on an individual basis, to be registered in this lab while taking CHM 3120 as a co-req.

A laboratory in experimental bacteriology and cell biology. Emphasis on experimental approaches and techniques used in study of cells and microorganisms. Experiments in microscopy, cell fractionation, metabolism, physiology, genetics, and regulation. This lab is

highly recommended for students who are plan to pursue graduate education in this field.
(Preston)

SOS 4303C Soil Microbial Ecology. F. Credits; 3; Prereq: SOS 3022 or permission of the instructor, Dr. David Silvia (392-9409).

Occurrence and activities of soil microorganisms and their influence on soil productivity and environmental quality. (Silvia)

HOS 4313C Laboratory Methods in Plant Molecular Biology. Credits; 3; for prereqs and course description contact the instructor Dr. Dave Clark at (392-7933) (Clark)

MCB 5303L Microbial Genetics and Biotechnology Laboratory. S. Credit; 2. Prereq: MCB 3020, MCB 3020L, and MCB 4304 or PCB 4522; Coreq: The professor, Dr. Shanmugam, will allow students to register if they are taking MCB 4304 or PCB 4522 as coreqs. This lab is highly recommended for students who are planning to pursue graduate education in this field..
(Shanmugam)

GENERAL ELECTIVE, GENERAL EDUCATION, GORDON RULE COURSES

Suggested elective courses to complete your schedule. Be sure to check the course descriptions in the UF catalog for prerequisites. Courses may vary by semester. Refer to Schedule of Courses on ISIS for recent updates. (Shaded = good Pre-Health choices)

C	SEMESTER	COURSE	DEPARTMENT	TITLE	GR GE
3	F, S, SS	AFA 2000	AA Studies	Introduction to African American Studies	H, 6
3	F, S, SS	ALS 3203C	Agriculture	PC Use in Agriculture	
3	S	AMH 3931	History	Race & Medicine	
3	F	AMH 3931	History	Sport and American Culture	
3	F, S, SS	AML 2070	History	Survey of American Literature	C, H, 6
2	F, S	ANS 2002	Animal Science	The Meat We Eat	
4	F, S, SS	ANS 3006C	Animal Science	Into Animal Science	
4	F, S, SS	ANS 3440	Animal Science	Principles of Animal Nutrition	
3	F, S, SS	ANT 2000	Anthropology	General Anthropology	S
3	F, S	ANT 2149	Anthropology	Lost Tribes Sunken Continents	H
3	F, S, SS	ANT 2301	Anthropology	Human Sexuality and Culture	S, D, 6
3	F, S, SS	ANT 2410	Anthropology	Cultural Anthropology	S, D
4	S	ANT 3514C	Anthropology	Into Biological Anthropology	B
3	S	ANT 3522	Anthropology	Skeleton Keys: Forensic Identification	
3	S	ANT4531	Anthropology	Molecular Genetics of Disease	
3	F,S	ANT 4525	Anthropology	Human Osteology and Osteometry	B
3	F	ANT 4586	Anthropology	Human Evolution	B
3	F,S	ANT 4740	Anthropology	Introduction to Forensic Science	
4	F,S,SSAB	APK2100C	Applied P & K	Human Anatomy	B
4	F, S, SSA	APK 2105C	Applied P& K	Human Physiology	B
3	F, S, SS	ARC 1701	Architecture	Architectural History	H, N, 6
3	F, S, SS	ARH 2050	Art & Art Hist.	Introduction to the History of Art 1	H, N
3		BCN 3012	Building Const.	History of Building Construction	H, N
3	F, S	BOT 2800	Botany	Plants In Human Affairs	B
3	F, S,	BOT 3151C	Botany	Local Flora of North Florida	B
4	F, S, SS	BUL 4310	Management	The Legal Environment of Business	
3	F	CLA 2100	Classics	Glory that was Greece	H,N
3	S	CLA 2120	Classics	Grandeur was Rome	H,N
3	F, S, SS	CPO 2001	Political Sci.	Comparative Politics	S, N
3	F, S	DAA 1000	Dance	Fundamentals of Dance Technique	H
3	F, S, SSA	EDF 3110	Education Psy	Human Growth and Development	S
3	F, S, SSA	EDF 3210	Education Psy	Educational Psychology	S, 6
3	F, SS	EEX 3312	Ed. Special Ed.	Exceptional People in School and Society	S,D
3	F, S, SS	ENC 1101-1102	English	English Composition	C, 6
3	F, S, SS	ENC 1145	English	Topics for Composition	C, 6
3	F, S	ENC 3254	English	Professional Writing Discipline	C, 6
3	F, S	ENG 1131	English	Writing through the Media	C, 6
3	F, SSB	EMU 1001	Entomology	Bugs and People	
3	F, S, SSB	ENY 2040	Entomology	The Insects	B
3	F, S, SS	ENY 3005	Entomology	Principles of Entomology	B
3	F	ENY 4660C	Entomology	Medical and Veterinary Entomology	B
3	F, S, SS	EUH 2001	History	Western Civiliz. Middle Ages to 18 th Cent.	H, N, 6
3	S	EUH 3033	History	History of the Holocaust	H, N, 4
3	F, S, SS	FOS 2001	Food Science	Man's Food	B
1	S	FRC 1010	Hort. Science	Growing Fruit for Fun and Profit	

3	F	GEA 3600	Geography	Geography of Africa	S, N, 6
3	F, S, SS	GEO 1010	Geography	Geography for a Changing World	S, N
3	F, S, SS	GLY 1000	Geography	Exploring Geological Science	P
	F, S,	GLY 1102	Geography	Age of Dinosaurs	B
3	F	HIS3465	History	Scientific Revolution	H,4
1	F	HOS 4905	Hort. Science	Space Biology	
3	F, S, SS	HSC 3102	Health Ed.	Personal Family Health	S
3	F, S, SS	HSC 3537	Health Ed.	Health & Medical Terminology (WEB)	
3	F, SS	HSC 4664	Health Ed.	Health Communication for Consumers	6
3	F, S, SS	HSC 4950	Health Ed.	Obesity	
3	F, S, SS	HSC 5536	Health Ed.	Health & Medical Term for HP (WEB)	
3	F, S	HUM 2424	Interd. Studies	African Cultures/Literature	H, N
3	F, S, SS	HUN 2201	Food Science	Human Nutrition	B
3	F, S	INR 2001	Political Sci.	International Relations	S, N
3	F, S, SS	ISS 2160	Indisp. Studies	Cultural Diversity in US	S, 6
3	F, S, SS	LEI 2000	Tour.Rec.Sport	Introduction to Recreation	
3	F, S, SS	LIN 2000	Linguistics	Language and People	H, 6
4	F, S, SS	MAN 3025	Management	Principles of Management	S
4	F,S,SS	MAR3023	Marketing	Principles of Marketing	S
3	F, S, SS	MEL 4005	Medicine – G	Medicine and the Law (WEB)	
3	F, S, SS	MEL 4011	Medicine - G	Intro to Professions of Medicine (WEB)	
3	F, S, SS	MEL 4012	Medicine - G	Physician Shadowing (WEB)	
3	F, S, SS	MEL 4601	Medicine - G	Diseases of Eating (WEB)	
3	F, S, SS	MUL 2010	Music	Music Literature	H, N, 6
1	S, SS	ORH 1030	Hort Sci.	Plants, Garden and You	
4	F, S, SS	PCB 3063	Zoology	Genetics	B
4	S	PCB 4674	Zoology	Evolution	B
5	F, S, SS	PCB 4723C	Zoology	Phys/Mol.Bio of Animals	B
3	?	PCB 2441	Honors Prog.	Biological Invaders	B
3	F, S, SS	PHI 2010	Philosophy	Introduction to Philosophy	H, 6
3	S	PLP 2000	Plant Pathology	Plants, Plagues and People	B
3	F	PLP 2060	Plant Pathology	Mold, Mildew, Mushrooms	B
3	F, S, SS	PSY 2012	Psychology	General Psychology	S
3	F, S	RUT 2100	German/Slavic	Russian Masterpieces	H
1	F, S, SSB	SLS 2301	Career Devel.	Career Planning	
1	F, S	SLS 2302	Career Devel.	Job Search Strategies	
3	F, S, SSB	SYG 2000	Sociology	Introduction to Sociology	S
3	F, S, SSB	SYG 2010	Sociology	Social Problems	S
3	F,S,SSAB	SYG 2430	Sociology	Marriage and Family	S, D
3	F	SYG 4400	Sociology	Medical Sociology	
3	F	SYG 4520	Sociology	Criminology	
3	F, S, SS	THE 2000	Theater	Theatre Appreciation	H, D
1	F	VEC 3200	Hort. Sci.	Vegetable Gardening	
3	S	URP 3001	Urban Planning	Cities of the World	S, N
3	F, S	WIS 2040	Wildlife Ecol.	Wildlife Issues	B
4	F, S, SS	ZOO 3713C	Zoology	Functional Vertebrate Anatomy	B
6	SS	ZOO 4403C	Zoology	Field Problems Marine Biology	
3		ZOO 4950	Zoology	Writing in Biological Sciences	C, 6

Revised 12/6/08

PRE-HEALTH PROFESSIONS INFORMATION

For more information, visit the Health Professions Handbook online at www.advising.ufl.edu/prehealth

Students planning on entering a post-baccalaureate health profession such as medicine, veterinary medicine, dentistry, podiatry, optometry, or chiropractic, should plan to complete the following courses by one year before graduating. Some health professions do not require all of the courses, and some require more. Also, requirements vary from school to school, so students should carefully investigate the requirements of the schools to which they plan to apply.

<u>MATHEMATICS</u> At least 2 semesters of college-level mathematics. Some schools require one semester of calculus. MAC 2311 OR MAC 3472 (Honors) NOTE: A few schools require two semesters of calculus. You should check with individual school requirements.	<u>ENGLISH</u> Many medical schools require 2 semesters of English. They normally do not specify courses, but any course with the words "writing," "composition," "English," or "literature" in the title should suffice.
<u>BIOLOGY</u> BSC 2010 BSC 2010L BSC 2011 BSC 2011L	<u>GENERAL CHEMISTRY</u> CHM 2045 CHM 2045L CHM 2046 CHM 2046L
<u>ORGANIC CHEMISTRY</u> CHM 2210 CHM 2211 CHM 2211L	<u>PHYSICS</u> PHY 2053 PHY 2053L PHY 2054 PHY 2054L
<u>BIOCHEMISTRY</u> BCH 4024 OR CHM 3218	

Chemistry is the longest sequence of the preprofessional courses. Since General Chemistry must be taken before Organic Chemistry, which must be taken before Biochemistry, the General Chemistry sequence should be started as soon as possible. Most students take chemistry and math in their first year. In the second year, most students take biology and either organic chemistry or physics. Transfer students who do not complete the entire general chemistry sequence before transferring to UF should consult with a chemistry advisor at UF before attempting to register for a general chemistry course.

TAKING REQUIRED COURSES AT OTHER INSTITUTIONS

It is normally recommended that a student complete most of his/her prerequisite courses at UF. In particular, students should not split a sequence of courses (such as general chemistry) between two institutions. In addition, a few professional schools will not accept community college credit for required courses. Also, taking many prerequisites at another school may appear to admissions committees that you are avoiding taking difficult classes at UF.

ELECTIVE COURSES

Most professional schools prefer candidates with broad educational backgrounds. In addition to a strong science background, professional school requires a solid foundation in basic verbal and quantitative skills. Nearly one-half of the MCAT focuses on writing skills and reading comprehension of non-scientific material. It is also advisable for preprofessional students to have more than the minimum number of science courses required for admission. Science majors will automatically meet this with science courses, such as immunology, anatomy, physiology, etc.

ADVANCED PLACEMENT AND INTERNATIONAL BACCALAUREATE CREDIT

To maintain your knowledge and demonstrate your academic ability to professional schools, you should plan on taking courses in areas in which you have been granted AP or IB credit, especially in English and the sciences. It is recommended that you follow your IB or AP credit with higher level courses, although in some circumstances a student may choose to take a course for which he/she has earned AP or IB credit. If you have such credit, discuss your situation with a pre-health advisor in the advising center.

PRE – HEALTH ADVISORS

Located in the Academic Advising Center
Call 392-1521 EXT. 204 for an appointment

PRE-MED LISTSERV

UF has set up a Pre-Med e-mail Listserv so that pre-med students can communicate with each other. E-mail messages sent to the list are forwarded to everyone who has subscribed to the list. Also, updates on pre-med workshops and other news are announced on the list. To subscribe to the list, send an e-mail to listserv@lists.ufl.edu with the following on-line message in the body: SUBSCRIBE UFPREMED-L firstname lastname.

MORE INFORMATION

All pre-health students are encouraged to read the Health Professions Handbook located online at <http://www.advising.ufl.edu> under pre-health students. Catalogs for many health profession programs are located in the Office of Health and Legal Professions Advising (OHLPA) Library on the second floor of the Academic Advising Center (open 8:00 – 12:00 and 1:00 – 5:00, Monday through Friday). Also, each fall semester there are a series of Health Professions Information Sessions for first-year and sophomore students who wish to learn more about requirements, application procedures, and suggestions for making themselves competitive. During the spring semester, Application Workshops are held for students who are applying to health profession programs that year. An Interview workshop is held for these students the following fall. Dates for upcoming workshops can be obtained by calling 392-1521, or by visiting the following web site: <http://www.advising.ufl.edu/advice/workshops.html>.

STILL HAVE QUESTIONS

If you have already read the Health Professions Handbook and attended an information session and you still have questions, you may then make an appointment to see a Pre-Health Professions Advisor by calling 392-1521 and pressing 0.

PRE HEALTH PROFESSIONS ADDITIONAL COURSE RECOMMENDATIONS

Students majoring in Microbiology and Cell Science who plan on entering a post baccalaureate program such as medicine, veterinary medicine, dentistry, podiatry, optometry, or chiropractic should include several additional courses into their schedule, along with their college and major requirements.

Pre-Med required courses:

Biology, 8 semester hours

General Chemistry, 8 semester hours

Organic Chemistry, 8 semester hours

Biochemistry, 4 semester hours

Physics, 8 - 10 semester hours

Math, 2 semesters of college level math - one semester of calculus is recommended

Pre-Med recommended courses:

Calculus 1 MAC 2311 or MAC 3472, 4 credits

Psychology 2012 General Psychology, 3 credits

STA 2023 Introduction to Statistics I, 3 credits

APK 2100C Applied Human Anatomy with lab, 4 credits

APK 2105C Applied Human Physiology with lab, 4 credits

HSC 3531 Health and Medical Terminology, 3 credits

MCB 3023 Principles of Microbiology (Microbiology Majors only), 3 credits, or MCB 3020

Basic Biology of Microorganisms (non-Micro majors), 3 credits

2 semesters of English with the words "writing", "composition", literature", or "English" in the title

Honors courses

Independent study

Scientific research

Pre-Dental required courses:

General Biology - 8 semester hours

Microbiology and Lab- 4 semester hours

Molecular Genetics - 3-4 semester hours

General Chemistry - 8 semester hours

**Organic Chemistry - 8 semester hours

Biochemistry - 4 semester hours

Physics - 8 - 10 semester hours

English Grammar and Composition - 6-8 semester hours

General Psychology - 3-4 semester hours

Developmental Psychology will no longer fulfill the requirement.

**The UF dental school recommends CHM 2210/Lab, CHM 2211/Lab, and BCH 4024 to fulfill the Organic Chemistry and Biochemistry requirement. If CHM 3217 and CHM 3218 are taken, it is recommended that students take an additional 4 credits in Biochemistry.

Pre-Dental strongly recommended courses:

Immunology, 3 credits, PCB 5235
Calculus 2, 4 semester hours
Statistics, 3-4 semester hours
Logic, (math oriented) 3-4 semester hours
Sociology/Cultural Diversity, 3-4 semester hours
Oral Communication or Speech SPC 2600 or AEE 3030C, 3 semester hours
Business Management, 3-4 semester hours

UF Pre-Vet Students are required to include the following courses in their schedule:

AGR 3303 Genetics, 3 credits or PCB 3063 Genetics, 3 credits (neither of these genetics courses can be substituted for the microbiology department genetics requirement and the microbiology genetics courses, MCB 4304 and PCB 4522, will not fulfill this pre-vet requirement)
ANS 3006C Introduction to Animal Sciences, 4 credits
ANS 3440 Principles of Animal Nutrition, 4 credits
STA 2023 Introduction to Statistics I, 3 credits

Physicians Assistant Programs - students must include the following courses in the schedule:

APK 2100C Applied Human Anatomy and lab, 4 credits
APK 2105C, Applied Human Physiology, 4 credits
HSC 3531 Health and Medical Terminology, 3 credits
STA 2023 Introduction to Statistics I, 3 credits

PSY 2012 General Psychology 3 credits

SPC 2600 or AEE 3030C Effective Oral Communication, 3 credits

Pharmacy required courses:

General Chemistry and General Chemistry and Qualitative Analysis
Biology I and II
Organic Chemistry
Anatomy and Physiology: APK2100C and APK2105C or ZOO 3713C and PCB 4723
Physics 1 and Applied Physics 2: PHY 2004 and PHY 2005
(Microbiology majors are required to take PHY 2053/with lab and PHY 2054/with lab or PHY 2048/with lab and PHY 2049/with lab) *MAC 2311 or MAC 2233

*Microbiology majors are required to take MAC 2311
SPC 2600 or AEE 3030C - Public Speaking or Oral Communication

For additional information regarding pre-professional program requirements and the application process visit the College of Liberal Arts and Sciences Health Professions Handbook online at: <http://www.advising.ufl.edu/ohlpa/prehealth>

PRE-GRADUATE SCHOOL INFORMATION

Students interested in pursuing graduate education in Microbiology and Cell Science should develop their strength in chemistry as soon as possible and should set up an appointment with an academic advisor to effectively plan their schedule.

Students who plan to attend graduate school in **microbiology, biochemistry** or a related field in **molecular biological sciences** are recommended to include the following courses in their schedule to fulfill the biochemistry requirement:

MAC 2312, Calculus 2, 4 credits
MAC 2313, Calculus 3, 4 credits
CHM 3218, Bioorganic Chemistry, 4 credits

To fulfill the **pathogens or immunology requirement**:

PCB 5235, Immunology, 3 credits:

To fulfill the **genetics requirement**:

MCB 4304, Genetics of Microorganisms, 3 credits or
PCB 4522, Molecular Genetics

To fulfill the **microbiology advanced lab requirement**:

MCB 5136L, Techniques Advanced Lab, 3 credits, or MCB 5303L, Microbial Genetics Lab, 2 credits

To fulfill the **remaining microbiology required elective** for a total of 10 credits:

MCB 4403, Prokaryotic Cell Structure, 3 credits
MCB 5303L, Microbial Genetics Lab, 2 credits
CHM 3400, Physical Chemistry, 3 credits

In addition, a student should include the following in their schedule to gain laboratory experience:

MCB 4905, Undergraduate Research, variable credits

REQUIREMENTS FOR GRADUATION WITH HONORS/HIGH HONORS OR HIGHEST HONORS (cum laude/magna cum laude or summa cum laude)

Students graduating with an upper division GPA of 3.50 will graduate cum laude. No research, thesis or enrollment in a specific course is required for graduation with honors. Students wanting to graduate magna cum laude (3.75) or summa cum laude (3.75) must fulfill the following criteria:

1. Enroll in a minimum of 4 credits of MCB 4905, Undergraduate Research
2. Enroll in one of the following courses and receive a grade of B or better:
PCB 5235, Immunology, 3 credits
MCB 5505, General Virology Honors, 3 credits
PCB 5136L, Techniques in Microbial and Cell Biology, 3 credits
MCB 5303L, Microbial Genetics Lab, 2 credits
MCB 5458, Energy Transformations, 3 credits
3. Write a senior research paper, two weeks prior to the last day of classes, meet with the department undergraduate coordinator and when your paper is approved turn it into the appropriate college representative one week prior to the last day of classes. There are sample papers in the Microbiology Advising Office that students may review for style, content, and format. Please schedule an appointment with Dr. Gurley, Undergraduate Coordinator wgurley@ufl.edu, to review your final paper and for the committee approval process for the department.

For college representatives who handle honors information, contact:

Agricultural and Life Sciences – James Fant, 2002 McCarty D, (352) 392-1963, jfant@ufl.edu

Liberal Arts and Sciences – Linda O'Donnell, Academic Advising Center Room 105, (352) 392-1521, odonnell@advising.ufl.edu

4. Maintain an upper division GPA of 3.75 through graduation for magna cum laude and an upper division GPA of 3.85 through graduation for summa cum laude.

NOTE: Students graduating with cum laude, magna cum laude or summa cum laude are presented with the opportunity to purchase honors cords for graduation ceremonies. Cum laude receive two cords, one blue and one orange, magna cum laude, two blue and two orange, and summa cum laude, three blue and three orange. Since graduation with cum laude, magna cum laude or summa cum laude is based upon a student's upper division GPA, the Registrar's Office utilizes the GPA that appears at the end of the semester from the previous term. Therefore, if a student is graduating in the spring semester the Registrar's Office will initially utilize the fall semester's GPA standing for the purpose of determining whether the cum laude, magna cum laude, or summa cum laude designation will apply. The student's final spring GPA will ultimately determine the particular honors designation. If a student's GPA is below the requirement for cum laude, magna cum laude, or summa cum laude, but it is anticipated that the GPA criteria will be met at

the end of the graduating semester and the purchase of the appropriate honors cords is desired, contact the appropriate college representative listed above for assistance in this regard.

MCB 4905

UNDERGRADUATE RESEARCH INFORMATION

Students with a University of Florida GPA of 3.0 or higher are encouraged to seek out a faculty research laboratory and register for undergraduate research, MCB 4905. Students interested in doing undergraduate research should investigate different professors' areas of research and find an individual doing research in an area of interest to the student.

An excellent starting point is to access the Contacts link on the department web site. This link lists various professors and their research interests. Your next step is to proceed to contact the professor. Another good starting point is to visit the main administrative offices of different departments; Microbiology, Biochemistry, Molecular Genetics, Microbiology, Zoology, Horticultural Sciences, Environmental Engineering., and obtain a listing of the professors and their individual research areas. Do not be discouraged if your initial contact is unable to accommodate you in their lab; ask them if they might know of someone else doing similar research. There are numerous professors on campus who would welcome the opportunity to have an undergraduate in their laboratory.

Some professors may wish to review your transcript. Professors are interested in students with qualified backgrounds that will enable them to be successful in the laboratory setting. Be prepared to make a commitment to the research effort for at least a year. It is difficult to do a meaningful research project for a professor in one semester. Professors invest substantially in their undergraduates and a long-range commitment is expected.

When a professor is located, discussions will determine the amount of time you will spend in the lab, your weekly schedule to be in the lab, the number of credits you should register for, your responsibilities in the lab, etc. For example, 4 hours spent in the lab per week will equal one (1) credit hour, but the final decision is between the professor and the student. In order to register for research credits, you are required to complete the MCB 4905 Undergraduate Research Form. You can stop by the main office and pick one up or you can download the form off of the advising website. Please return the form to the secretary in the main office so that she will be able to register you. The secretary cannot register you for the research without this form. Students cannot register for more than 4 credits in a semester (including the entire summer semester), and no more than 10 credits total.

At the end of the semester your professor should call the department secretary at 392-1906 or e-mail Janet Gilbert at janetgil@ufl.edu to submit your grade. If this is not done, the professor will be contacted to provide your grade.

TRANSFER STUDENT REGISTRATION RECOMMENDATIONS

No Organic Chemistry or Physics completed:

Please limit yourself to 2 science courses only.

- CHM 2210 – Organic Chemistry, 3 credits
- **PHY 2053 – Physics 1, 4 credits or one 3 credit department elective.
- **PHY 2053L – Physics 1 Lab, 1 credit
- One college requirement if needed (CAL S -Economics, Speech or Tech Writing. CLAS - Foreign language or additional gen-ed composition or social/behavioral science if needed), 3 credits
- General Elective of your choice, 2-3 credits
- TOTAL = 13-14 credits

** If you do not take PHY your first semester you will need to plan to stay both summers to complete the Microbiology curriculum in two years as expected by both colleges. If you do not have Physics completed by the end of the summer of your first full year, you will not be prepared for the MCAT. Pre-dental students; physics is not included in the DAT so you can wait until spring to start Physics if you are more comfortable doing that. However, it will mean you will have to triple and quad up on science courses for all future semesters to complete your degree in 2 years/with summers.

A typical schedule for a native Microbiology major at UF is CHM 2210 and PHY 2053 in the first semester of their Jr. year.

Organic Chemistry (CHM 2210 only) and Physics 1 & 2 completed

- MCB 3023 – Principles of Microbiology, 3 credits. The prerequisite for this class is CHM 2210.
- MCB 3023L – Principles of Microbiology Lab, 2 credits (You do not have to take the lab with the class. It is ok to split them.)
- CHM 2211 – Organic Chemistry, 3 credits
- CHM 2211L – Organic Chemistry Lab., 2 credits
- College Requirement, 3 credits
- General Electives of your choice, 1-3 credits
- TOTAL = 12-14 credits

Organic Chemistry (CHM 2210 and CHM 2211 + Lab) and Physics 1 & 2 completed:

- MCB 3023 – Principles of Microbiology, 3 credits (The prerequisite for this class is CHM 2210) and MCB 3023L – Principles of Microbiology Lab). You do not have to take the lab with the class. It is ok to split them.

Or

BCH 4024 – Biochemistry, 4 credits (You can also take CHM 3218 for your biochemistry requirement, 4 credits This course (CHM 3218) gives you the one extra chemistry course needed to complete the chemistry minor.) The prerequisite for this class is CHM 2210 and CHM 2211.

- Department Elective – ZOO 4232 – Parasitology, 3 credits, which requires completion of General Biology and General Chemistry (Fall semester only) or PCB 3134 – Eukaryotic Cell Structure, 3 credits with a prerequisite of General Biology and CHM 2210 completed (Fall and Spring semesters).
- College requirement, 3 credits
- General Elective of your choice, 2-3 credits
- TOTAL = 12-13 credits