

Welcome to the Department of Biological Sciences



YOUNGSTOWN STATE UNIVERSITY



stem

College of
Science, Technology,
Engineering & Mathematics

Main Office Ward Beecher Hall Room 4037
(330) 941-3601

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Tips for Success!

Choosing the proper undergraduate major and devoting the needed time to your academic career are part of your responsibilities as an adult. Biology is a rigorous major that can provide you with many future career options. Like many endeavors in life, your journey as biology major requires dedication and hard work. Your undergraduate performance and postgraduate career will be products of the quality time that you invest in your academics. To help you get started, here are some tips for success that can be applied throughout your undergraduate degree program.

- Time management
 - Note examinations, quizzes, assignments and due dates on your calendar
 - Keep up with your studies on a daily basis
 - Science courses require at least two hours of study time for every hour of lecture
 - Start reviewing for examinations at least one week in advance
 - Do not review the text and/or lecture notes just before walking into the examination
 - Studying information right before the exam is more likely to hurt your performance
 - This last bit of studied content will be drifting around in your short term memory and may interfere with recall of information that you studied days, weeks or even months before
 - Get enough sleep the night before your exam
- Utilize your support network on campus
 - Visit your professor and/or graduate teaching assistant, during office hours, to clarify questions as soon as they arise
 - Do not wait until just before the examination
 - Review your performance on assignments, quizzes and exams with your professor
 - Visit a STEM Professional Services career advisor to build a college-level resume and discuss experiential learning, career or graduate school plans. Call 330.941.2151 to schedule an appointment.
 - Don't wait until just before you graduate!
 - Even if you did not need it in high school, take advantage of free tutoring available on campus through the Center for Student Progress (330-941-3538), information regarding the Center is provided at the end of this packet
- Learn how you learn!
 - Consider taking a learning style test such as the VARK to determine your optimal learning mode (visual, aural, read/write, kinetic or multimodal) <http://www.vark-learn.com>



Academic Resources

STEM PROFESSIONAL SERVICES 330.941.2151

Moser Hall, Room 2095

ysu.edu/academics/science-technology-engineering-mathematics/internships

A comprehensive STEM education extends far beyond the classroom. We help you get the workforce and research experience you need to offer employers the strong candidate they expect from today's STEM graduates.

CENTER for STUDENT PROGRESS (CSP) 330.941.3538

Kilcawley Center West

<http://cc.ysu.edu/csp/>

Coordinators provide one-on-one peer mentoring assistance to help you set and accomplish goals. You will regularly meet with a CSP Coordinator to review your progress. Tutors are available for specific content areas. Call to make an appointment.

MATH ASSISTANCE CENTER 330.941.3274

Lincoln Bldg., Room 408

www.as.ysu.edu/~math/student%20_services_mac.htm

You must be enrolled in a mathematics course to use this service. Provides assistance with mathematical concepts and provides answers for homework problems, on a walk-in basis.

READING & STUDY SKILLS CENTER 330.941.3099

Maag Library, Lower Level

www.ysu.edu/rdg-studyskills

Provides one-on-one tutoring in study skills (goal setting, time management, note-taking, textbook reading, etc.). Provides computer assisted instruction in reading comprehension and increased reading speed. Appointment basis or walk-in hours available.

WRITING CENTER 330.941.3055

Maag Library, Lower Level

www.as.ysu.edu/~english/wc/Writing_Center_Homepage.htm

Provides assistance with developing competence in writing fundamentals and writing styles. Call to make an appointment.

OTHER RESOURCES

Career and Counseling Services, Jones Hall, Room 1034	www.ysu.edu/career-services	330.941.3515
Center for International Studies, Jones Hall, Room 1005	www.ysu.edu/cisp/	330.941-2336
Disability Services, 36 W. Wood St.	www.ysu.edu/services/disabilityservices	330. 941.1372
Financial Aid, Meshel Hall, 2nd Floor	www.ysu.edu/finaid	330.941.3505
Maag Library	www.maag.ysu.edu/	330.941.3678
Mental Health Counseling, Jones Hall, Room 3009	web.ysu.edu/counselingservices	330.941.3737

“One Stop” Information for Students

Being a student at Youngstown State University just got easier!



WE PROVIDE STUDENT COUNSELING AND PROBLEM RESOLUTION FOR THE FOLLOWING AREAS:

RECORDS/REGISTRATION

Course Registration/Errors
FERPA Authorization Release
Personal Information Changes
Photo ID Processing
Transcript Requests

FINANCIAL ASSISTANCE

Award Acceptance
Aid Eligibility Status
Loan Disbursement Deadlines
Verification Requirements

ACCOUNTS/BILLING

Account Holds
Billing Statements
Direct Deposit Assistance
Fees/Charges Explanations
Payment Plans

Students should start with
ONE STOP COUNSELORS

“ OUR COUNSELORS WILL
RESOLVE ISSUES AND/OR WORK AS
A LIAISON BETWEEN OTHER CAMPUS
OFFICES AND THE STUDENT TO
DECREASE OFFICE SHUFFLE. ”

LOCATION/HOURS

Meshel Hall, Room 232
(330) 941-6000
web.yzu.edu/onestop

Monday-Thursday: 8AM-5PM
Friday: 9AM-5PM

Student
ONE STOP
YOUNGSTOWN STATE UNIVERSITY



Financial Aid
Records and Registration
University Bursar


Youngstown State University does not discriminate on the basis of race, color, national origin, sex, sexual orientation, gender identity and/or expression, disability, age, religion or veteran/military status in its programs or activities. Please visit www.yzu.edu/ada-accessibility for contact information for persons designated to handle questions on this policy.


**College of Science, Technology, Engineering & Mathematics (STEM)
Information**


Contact STEM

2200 MOSER HALL

330.941.3009

 [@ysu_stem](#)

 [@ysu.stem](#)

 [YouTube](#)

[Blog](#)

STEM Advisement Department

<https://ysu.edu/academics/science-technology-engineering-mathematics/advisement>

Name	Area of Focus	Office # Moser Hall	Campus Phone # 330-941- XXXX	Email Address
Denise Walters Dobson	<ul style="list-style-type: none"> • Academic Advisor • Reviews reinstatements to the College of STEM • Petitions for late withdrawals, • Transient student approval • Oversees graduation clearance 	2315	7272	dwdobson@ysu.edu
Brett Kengor	<ul style="list-style-type: none"> • Academic Advisor • BaccMed and Pre-Medical Students 	2300	1531	barovnyak@ysu.edu
Mary Lou Puskar	<ul style="list-style-type: none"> • Administrative Assistant 	2280	3753	mlpuskar@ysu.edu
Sylvia J. Rupert	<ul style="list-style-type: none"> • Administrative Assistant 	2325	2512	sjrupert@ysu.edu

YOUNGSTOWN STATE UNIVERSITY



stem

*College of
Science, Technology,
Engineering & Mathematics*

Suggested Undergraduate Timeline

Freshman Year

- Before meeting with an advisor, review course requirements for the undergraduate degree
- ADVISEMENT POLICY IN THE DEPARTMENT OF BIOLOGICAL SCIENCES (DBS)
 - Meet with your advisor from the DBS and plan a tentative course timetable for your undergraduate degree program
 - DBS assigns an advisor to you based upon your last name
 - Dave Asch – Undergraduates with last names Aa through Be
 - Deb Benyo – Undergraduates with last names Ca through Cz
 - Mike Butcher – Undergraduates with last names Bf through Bz
 - Jon Caguiat – Undergraduates with last names Da through Fa
 - Chet Cooper – Undergraduates with last names Fe through Ha
 - Tom Diggins – Undergraduates with last names Hb through Kl
 - Diana Fagan – BaccMed students
 - Carl Johnston – Undergraduates with last names Km through Ma
 - Jodie Krontiris-Litowitz – Undergraduates with last names Mb through Na
 - Heather Lorimer – Undergraduates with last names Nb through Q
 - Jack Min – Undergraduates with last names Ra through Sh
 - Ian Renne – Undergraduates with last names Si through Ts
 - Jill Tall – Undergraduates with last names Tt through Zz
 - Gary Walker – Senior evaluations
 - Mark Womble – Graduate students
 - Faculty can mutually agree to transfer/switch advisees to whom they have been assigned, but a faculty member is not required to do so unless directed by the Chair
 - DBS must be notified of any transfer/switch of advisees between faculty
 - Students, at their discretion, may switch advisors, but must notify the DBS
 - Only the Chair can prohibit this student-initiated action.
- If you are planning to enter a graduate or professional degree program after graduation, determine the admission requirements for your intended program
 - This information can be found by searching the program's web site
 - See the attached chart, "Prerequisite Course for Various Graduate & Professional Schools" section below
 - Determine the type of graduate admissions examination required
 - Dental Admission Test (DAT)
 - Graduate Record Examination (GRE)
 - Medical College Admission Test (MCAT)
 - Optometry Admission Test (OAT)
 - Pharmacy College Admission Test (PCAT)
 - All graduate and professional programs require letters of recommendation
 - Develop genuine relationships with your professors and the professionals practicing in your area of interest during your undergraduate years
 - Letters of recommendation are crucial to your admissions package and you want someone to write a thoughtful and thorough letter on your behalf

- Start a curriculum vitae, also known as your CV
 - This is your résumé, a document that summarizes your education, employment history and experiences that are relevant to your qualifications for the particular graduate program for which you are applying
- Join a student organization to meet students with similar goals
 - Biology Club
 - Premedical Chapter of the American Medical School Association (AMSA)

Sophomore Year

- Meet with your advisor in the DBS to discuss class scheduling and career goals
- Gain exposure and experience in your field of interest
- Consider volunteer work or community service
- Contact professionals regarding internships or “shadowing” opportunities
- Participate in authentic research projects
 - Most YSU faculty conduct research and may offer undergraduate students the chance to join their laboratory for the summer, fall, or spring semesters
 - BIOL 4850 *Problems in Biology* serves as an independent study course (1 to 3 semester hours) which can be taken for up to three total semester hours of credit toward your degree
- Apply to research positions hosted by external agencies or programs

Junior Year

- Meet with your advisor in the DBS to discuss class scheduling and career goals
- Gain exposure and experience in your field of interest
- Consider volunteer work or community service
- Contact professionals regarding internships or “shadowing” opportunities
- Continue to participate in authentic research projects
- Apply to research positions hosted by external agencies or programs
- Register to take the required graduate school admissions examination
 - For example, the Graduate Record Exam (GRE) or Medical College Admission Test (MCAT)
 - Register for an optional test preparation course: Princeton or Kaplan
- Begin the graduate school application process during the spring semester, many programs utilize a single, online application site
 - American Association of Colleges of Osteopathic Medicine <http://www.aacom.org>
 - American Medical College Application Service <https://www.aamc.org>
 - Central Application Service for Physician Assistants https://help.liaisonedu.com/CASPA_Applicant_Help_Center
 - Pharmacy College Application Service <http://www.pharmcas.org/>
 - Physical Therapist Centralized Application Service <http://www.ptcas.org/home.aspx>
 - Veterinary Medical College Application Service <http://www.aavmc.org/>

- Begin work on your personal statement/essay
 - Remember this statement while preparing your essay, *it's not what you do, it's what you learn from what you do that makes the difference*
 - This statement means you should focus on what you gained intellectually, morally and emotionally from an experience rather than simply listing all the things you have accomplished
- Considering a master's degree program
 - Investigate the research projects of various laboratories of interest to you
 - Begin contacting prospective professors to express your interest in their work and determine if there are openings in their laboratory
 - Admission to graduate programs depends largely on the availability of assistantships (teaching or research), and on the availability of positions (and funding) in a particular research lab
 - Even if you are the best applicant, you may not be admitted if the professor you are applying to work with does not have any room in his/her lab
 - For that reason it is important to establish a correspondence with professors at different universities and to apply to more than one graduate program
- Begin requesting letters of recommendation
 - It is suggested that you choose the option to *waive your rights* to read the letters of recommendation

Summer before the Senior Year

- Finish your personal essay for the primary application and have multiple people edit and comment on the content of this document
- Finish the online application process
- Continue to research and contact prospective professors to express your interest in their work and determine if there are openings in their laboratory
- Stay active in volunteering, leadership roles, research projects, “shadowing” experiences

Senior Year

- Meet with your advisor in the DBS to discuss class scheduling, career goals and verify that all graduation requirements will be met
- Meet with the department chair for your “Senior Evaluation”
- Continue to take challenging courses and a full course load
- Stay active in volunteering, leadership roles, research projects, “shadowing” experiences
- Meet all deadlines for the primary applications
- Prepare for the graduate program interview
- Offers of acceptance into a graduate program or professional school begin as early as November and as late as the first day of classes





Working with a Faculty Advisor

When should you meet with your faculty advisor?

- You need to plan your courses for the upcoming semester
- You need some direction in considering career interests
- You want to learn about research opportunities
- You are having trouble in a course, a personal issue is affecting your academic performance, or in need of a confidant

Make an appointment with your faculty advisor

- Determine your assigned advisor from the table found at the end of this section
- Contact your advisor by phone, e-mail, or come to scheduled office hours
 - Each faculty member is required to maintain office hours each week
 - During these hours, they are available to meet with students outside of the classroom
 - Office hours change each semester, the current listing is posted on the bulletin board outside of the Biology Office in Ward Beecher Hall, room 4037

Be courteous and considerate

- If you made an appointment, then be on time
- Please remember to cancel or change the appointment if you have to change your schedule

Be prepared and organized for meetings

- Before meeting with your advisor, review the course requirements for your degree program, your progress toward graduation and course offerings for the upcoming semester
- Make sure you can clearly articulate your questions and concerns

Be sure you understand all rules and requirements

- It is the student's responsibility to understand the course requirements for your major, the graduation requirements for the College of Science, Technology, Engineering, and Mathematics and for Youngstown State University
- Rules and requirements can vary by semester/year of enrollment, so do not assume that your friend knows the rules that apply to you!

HELP, I cannot get in touch with my faculty advisor

- Another place to gain helpful insight and advising assistance is the STEM Advising Center in Moser Hall, room 2325 (330-941-7272)

Name	Last Name of the Undergraduate Student Advisees	Email Address XXXX@ysu.edu	YSU Phone # 330-941-XXXX	Area of Expertise
Dr. Dave Asch	Aa – Be	dkasch	3187	Molecular Biology & Microbiology
Dr. Deb Benyo	Ca – Cz	dfbenyo	3606	Anatomy & Physiology
Dr. Mike Butcher	Bf – Bz	mtbutcher	2195	Anatomy & Physiology
Dr. Jon Caguiat	Da – Fa	jjcaguiat	2603	Molecular Biology & Microbiology
Dr. Chet Cooper	Fe – Ha	crcooper01	1361	Molecular Biology & Microbiology
Dr. Tom Diggins	Hb – Kl	tpdiggins	3605	Evolution & Ecology
Dr. Diana Fagan	BaccMed Students	dlfagan	1554	Molecular Biology & Microbiology
Dr. Carl Johnston	Km – Ma	cgjohnston	7151	Molecular Biology & Microbiology
Dr. Jodie Krontiris-Litowitz	Mb – Na	jkrontirislitowitz	3572	Anatomy & Physiology
Dr. Heather Lorimer	Nb – Q	helorimer	7179	Molecular Biology & Microbiology
Dr. Xiangjia “Jack” Min	Ra – Sh	xmin	1945	Molecular Biology & Microbiology
Dr. Ian Renne	Si – Ts	ijrenne	1943	Evolution & Ecology
Dr. Jill Tall	Tt – Zz	jmtall	1387	Anatomy & Physiology
Dr. Gary Walker	Senior Evaluations	grwalker	7177	Molecular Biology & Microbiology
Dr. Mark Womble	Graduate Students	mdwomble	4727	Anatomy & Physiology

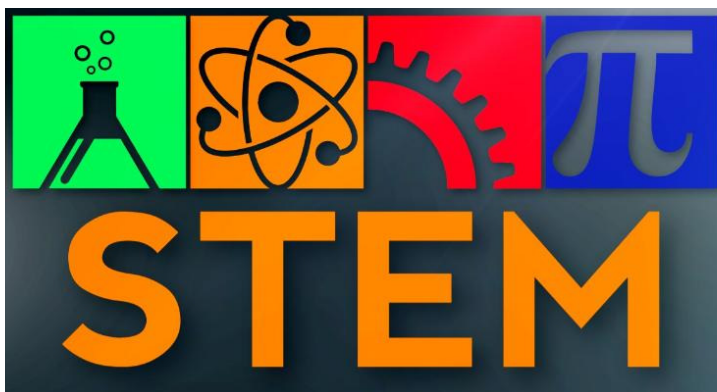
Working with your STEM Professional Services Advisor

When should you meet with your STEM Professional Advisor?

- As soon as possible! Even if you are not sure what you want to do, you can learn how to build an effective resume, dress professionally, etc.
- Explore internships, off-campus research, graduate school and full-time employment opportunities.
- Prepare materials to apply for any application.

Any of our career advisors are qualified to work with biological sciences students.

- Director: Sherri Hrusovski, slhrusovski@ysu.edu
- Coordinator: Quan Tran, qgtran@ysu.edu
- Graduate Assistant: Paul Rainey, prainey@ysu.edu



Make an appointment

- By phone, e-mail, or stop by the office
 - 330-941-2152, stem.jobs@ysu.edu, Moser Hall Room 2095
- Walk-in hours are also available during the academic year.
 - Fall Semester
 - Tuesdays: 2:30-4:30pm
 - Wednesdays: 5:00-7:30pm

Bring a printed version of any materials required for the appointment

- Resume, cover letter, job posting, graduate program requirements, etc.

Academic Schedule Planning Sheet

SCHEDULE PLANNER

SEMESTER:

Name:

BANNER

ID:

Dept & Course Number	Course Title	CRN	S.H.	Time	Days

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8 - 9 am						
9 - 10 am						
10 - 11 am						
11 - 12 pm						
12 - 1pm						
1 - 2 pm						
2 - 3 pm						
3 - 4 pm						
4 - 5 pm						
5 - 6 pm						
6 - 7 pm						
7 - 8 pm						

Important Information about Grades

Grade Options

The University uses the traditional grading system when assigning a final grade for a complete course: A, B, C, D, or F. Assignment of course grades is the responsibility of the course instructor. The grading policy for the course can be found on the course syllabus distributed at the beginning of the semester. All courses required for the major must be completed with a final grade of “C” or better. Students may also elect the following options but only through the last day to add a class for the semester.

Audit (AU)

AU signifies that a student has registered for a class on an audit basis and has met the attendance requirement. No credit is given for AU courses – the course does not count in the academic load except for fee purposes. You may change an audited course to a credit class only during the period to add a class.

Credit/No Credit (CR/NC)

Students may elect to take a course outside their major, minor, or support as CR/NC. Students electing the CR/NC option are not identified as such on the class roster. The following conditions apply:

- Current students must have completed at least 15 SH and have a GPA of 2.0 or better
- Transfer students must have at least 30 SH of transfer credit and be unconditionally admitted
- Students must receive a grade of A, B, or C to receive credit
- A grade of D will result in no credit
- The CR/NC option may be elected for 12 SH toward the bachelor degree
- Students may register for only one course CR/NC per semester or summer session; limit 15 SH
- Students must indicate the CR/NC option at the time they register or within the official drop/add period

Incomplete Grade

A grade of Incomplete (I) may be assigned under the following conditions:

- The student requests the grade of incomplete
- Both faculty and student sign the “Request for Incomplete Grade” form
- Previous work in the class has been satisfactory
- The circumstances leading to the request are beyond the student’s control
- The course instructor considers the incomplete grade justified
- The option may never be used to allow extra time to avoid a failing grade
- If no formal change occurs within three months the “I” becomes an “F”
- After completed, the instructor submits a “Change of Grade” form



Repeating a Course

Students may repeat any class in which they earned a grade of “D” or “F”. If the course is a prerequisite for another course, the repetition must be successfully completed before the subsequent course is taken. Once the student has completed the course for the second time, a “Repetition Form” must be filed (available from the STEM advising staff in Moser Hall or from the office of the student’s major department). Students can only repeat a course once for grade recalculation purposes. A student who seeks to take the same course a third time must receive approval of the Academic Administrator. Courses taken out of sequence do not qualify for this option.

The following conditions apply to course repetition:

- The grade from the first completion remains on the permanent transcript
- The grade point average (GPA) is adjusted to reflect only the last grade
- Credit hours for the course are only counted once
- All YSU grades enter into the determination of graduation honors
- When applying to a graduate school or professional degree program, *both grades* will be used to calculate the student’s final, undergraduate GPA for admission to the program
- Only currently enrolled undergraduates at YSU may petition for recalculation of GPA

**Requirements for the Bachelor of Science (BS) Degree in Biological Sciences
with a Minor in Chemistry**

The BS degree requires a minimum of 37 semester hours (SH) from within the Department of Biological Sciences. Courses at the 1500 level are not applicable to a BS degree.

REQUIRED COURSES FOR ALL BIOLOGY BS UNDERGRADUATE STUDENTS

Course Number	Course Name	Course Pre-requisite	SH
BIOL 2601/2601L	General Biology: Molecules and Cells	CHEM 1515 or concurrent enrollment in CHEM 1515	4
BIOL 2602/2602L	General Biology: Organisms and Ecology	BIOL 2601	4
BIOL 3721 OR BIOL 3759	Genetics Evolution	BIOL 2601 BIOL 2601 and BIOL 2602 or instructor consent	3 3
BIOL 4861	Senior Biology Capstone Experience	Senior status and completion of at least one 3700 and 4800 level laboratory course	2

LECTURE/LABORATORY COURSE AT 4800-5800 LEVEL – At least one of the following is required

BIOL 4800/4800L Bioinformatics	BIOL 4801/4801L Environmental Microbiology
BIOL 4805/4805L Ichthyology	BIOL 4811/4811L Comparative Biomechanics
BIOL 4819/4819L Taxonomy of Flowering Plants	BIOL 4866/4866L Dendrology
BIOL 4890/4890L Molecular Genetics	BIOL 4830/4830L Functional Neuroanatomy
BIOL 4834/4834L Advan Phys: Integrative Mechan	BIOL 4835/4835L Advan Phys: Regulatory Mechan
BIOL 4836/4836L Cell Biology: Molecular Mechanisms	BIOL 4866/4866L Dendrology
BIOL 5811/5811L Ornithology	BIOL 5813/5813L Vertebrate Histology
BIOL 5824/5824L Behavioral Neuroscience	

CHEMISTRY REQUIRED COURSES

Course Number	Course Name	Course Pre-requisite	SH
CHEM 1515/1515L	General Chemistry 1 & Laboratory	CHEM 1501 or equivalent; MATH 1513 or equivalent	4
CHEM 1516/1516L	General Chemistry 2 & Laboratory	CHEM 1515	4
CHEM 3719/3719L	Organic Chemistry 1 & Laboratory	CHEM 1516	4
CHEM 3720/3720L	Organic Chemistry 2 & Laboratory	CHEM 3719	4

MINOR IN CHEMISTRY ELECTIVE COURSES – Select two of the following

Course Number	Course Name	Course Pre-requisite	SH
CHEM 2604/2604L	Quantitative Analysis & Laboratory	CHEM 1516	5
CHEM 3729/3729L	Inorganic Chemistry	CHEM 3739 or concurrent enrollment in CHEM 3739	3
CHEM 3739/3739L	Physical Chemistry & Laboratory	CHEM 3720, PHYS 2611, PHYS 2611L, MATH 1572	4
CHEM 3764	Chemical Toxicology	CHEM 3720	3
CHEM 3785	Biochemistry 1	CHEM 3720	3
CHEM 4850/4850L	Chemistry Research & Laboratory	CHEM 2604 or CHEM 3719 and approval of department chairperson	1-3

PHYSICS REQUIRED COURSES

PHYS 1501/1501L and 1502/1502L Fundamentals of Physics 1 and 2 with Laboratories **OR**
PHYS 2610/2610L and 2611/2611L General Physics with Laboratories

MATHEMATIC-RELATED REQUIRED COURSES

MATH 1570 Applied Calculus 1 **or** MATH 1571 Calculus 1
STAT 3717 Statistical Methods **or** BIOL 5853 Biometry (prerequisite: 20 SH of BIOL courses)

REQUIRED GENERAL EDUCATION COURSES

Arts and Humanities (AH) – Two courses
Social Science (SS) – Two courses
Social and Personal Awareness (SPA) – Two courses

Some GER courses are listed in multiple domains and students can use the course in either domain; however, the course cannot be used to fulfill both domains. A listing of all AH, SS, and SPA courses for the 2012 General Education model may be found online.

CORE COMPETENCIES

ENGL 1550 and 1551 Writing 1 and 2 **or** ENGL 1550H and 1551H
COMST 1545 Communication Foundations **or** COMST 1545H



Department of Biological Sciences – Undergraduate Course Schedule

The information listed in this table represents the standard schedule, but course offerings are subject to change. Students should always refer to the YSU course catalog for the full listing of courses offered each semester (e.g., some courses may not be offered in a semester due to faculty leave, FILs, sabbaticals, etc.).

BIOL Course Number	Course Name	Semester Hour(s)	*Fall Semester	*Spring Semester	*Summer Semester
2601/2061L	General Biology: Molecules and Cells	4	MWF 9:00-9:50	MWF 8:00-8:50	MWF 10:30-12:45; M&W 1:00-3:50
2602/2062L	General Biology: Organisms and Ecology	4	TR 1:00-2:15	MWF 9:00-9:50	2 nd half of summer MWF 10:30-12:45; M&W 1:00-3:50
2603	Integrated Biology for BS/MD	4	MTWR 2:00-2:50		
3702/3702L	Microbiology	4	MWF 10:00-10:50	MWF 10:00-10:50	1 st half of summer; MWF 11:30-1:45
3703	Clinical Immunology	3	MWF 10:00-10:50	MWF 9:00-9:50	
3705/3705L	Introduction to Human Gross Anatomy	4	M 10:00-11:50 am W,F 10:00-10:50 am labs: R 11:00-11:50; or R 12:00-12:50; or F 11:00-11:50 or F 12:00-12:50	M 2:00-3:50 pm W, F 2:00-2:50 pm labs: R 10:30-11:20; or R 11:30-12:20; or F 10:00-10:50; or F 11:00-11:50; or F 12:00-12:50	X
3711	Cell Biology: Fine Structure	3		MWF 1:00-1:50	
3721	Genetics	3	MWF 1:00-1:50	MWF 10:00-10:50	1 st half of summer; MWF 10:30-12:45
3725	Mammalogy	3	TR 1:00-2:15		
3730	Human Physiology	4	MTWR 12:00-12:50	MTWR 12:00-12:50	1 st half of summer; TR 10:00-2:10
3730L	Human Physiology Laboratory	1	T or W 9:00-11:50; M,T or W 2:00-4:50	T or W 9:00-11:50; M,T or W 2:00-4:50	TR 2:30-5:50
3740/3740L	Plant Diversity	4	MWR 8:00-8:50; lab T 8:00-8:50		
3741/3741L	Animal Diversity	4		TBA	
3745	Plant Physiology	3	MWF 9:00-9:50		
3759	Evolution	3	TR 11:00-12:15		
3762/3762L	Field Botany	4	TR 1:00-1:50; lab TR 2:00-3:50		
3780/3780L	General Ecology	5	MWF 1:00-1:50 lab W 2:00-5:50		
4800/4800L	Bioinformatics	4		TR 11:00-12:15, T 1:00-3:00	
4801/4801L	Environmental Microbiology	4		MW 2:00-2:50; Lab: 3:00-4:50	
4803	Stream Ecology	3		TR 4:00-5:15	
4805/4805L	Ichthyology	3	MW 12:00-12:50; lab F 2:00-3:50		
4806	Ecosystem Field Ecology	4		TBA	
4809	The Human Microbiome	3	MW 10:00-11:20	MW 10:00-11:20	
4811/4811L	Comparative Biomechanics			TR 3:00-4:15, W 12:00-1:50, W 2:00-3:50	
4822	Principles of Pharmacology	3		TR 9:30-10:45	
4823	Cancer Biology	2		MW 11:00-11:50	
4829	Microbial Physiology	3		MWF 10:00-10:50	
4830/4830L	Functional Neuroanatomy	4	Odd years TR 9:00-10:45		
4834/4834L	Advanced Physiology Integrative Mechanisms	4		Even years TTh 1:00-2:15	
4835/4835L	Advanced Physiology Regulatory Mechanisms	4		Odd years TTh 1:00-2:15	
4839	Selected Topics in Physiology	1		W 12:00-12:50	

BIOL Course Number	Course Name	Semester Hour(s)	*Fall Semester	*Spring Semester	*Summer Semester
4848	Biology of Fungi	3		Even years MW 2:00-3:15	
4850	Problems in Biology	1-3	TBA by instructor	TBA by instructor	TBA by instructor
4861	Senior Biology Capstone Experience	2	F 12:00-1:50	F 12:00-1:50	
4878	Conservation Biology	3		Even Years MW 2:00-3:15;	
4890	Molecular Genetics	3		MWF 10:00-11:50	MWF 10:30-12:40
4890L	Molecular Genetics Laboratory	1		TR 1:00-3:50	TR 11:00-1:50
4896	Introduction to Biomedical Research	2	R 1:00-2:15		
4897	Internship in Biomedical Research	3	TBA	TBA	
4898	Research in Physiology	3	TBA	TBA	
5804	Aquatic Biology	3		TR 4:00-5:15	
5806	Field Ecology	4	TBA		
5811/5811L	Ornithology	4		MW 2:30-3:45; lab M 4:00-6:45 Odd Years	
5813/5813L	Vertebrate Histology	4		TTh 12:30-1:50; Labs: T or R 2:00-3:50	
5824/5824L	Behavioral Neuroscience	4	MW 10:00-11:15 Lab T 1:00-3:50		
5827	Gene Manipulation	2	TR 2:00-4:50		
5832	Principles of Neurobiology	4	Even Years TR 9:00 -10:45		
5833	Advanced Eukaryotic Genetics	3	MW 5:10-6:25		
5840	Advanced Microbiology	3	MWF 1:00-1:50		
5853	Biometry	3		MW 3:00-4:30	
5868	Human Gross Anatomy 1	4			T 2:00-4:50 Lab R 1:00-4:50
5859	Human Gross Anatomy 2	4	T 2:00-4:50 Lab R 1:00-4:50		

Prerequisite Courses for Various Graduate & Professional Schools

The following chart provides general recommendations for prerequisite courses. For the specific courses required for a particular program, it is strongly recommended to visit the school's web site.

YSU Course	Medical	Dental	Veterinary	Pharmacy	Physical Therapy
BIOL 3702 <i>Microbiology</i>	Recommended	Required	Required	Recommended	Recommended
BIOL 3703 <i>Clinical Immunology</i>	Recommended	Recommended	Recommended		
BIOL 3705 <i>Introduction to Human Gross Anatomy</i>	Recommended and required by some programs	Required	Recommended		Required
BIOL 3711 <i>Cell Biology</i>		Recommended			
BIOL 3730/3730L <i>Human Physiology</i>	Recommended	Required	Recommended	Recommended	Required
BIOL 4822 <i>Principles of Pharmacology</i>	Recommended			Recommended	
BIOL 4890/4890L <i>Molecular Genetics</i>	Recommended				
BIOL 5813 <i>Vertebrate Histology</i>		Recommended			Recommended
CHEM 3785 <i>Biochemistry 1</i>	Recommended	Required	Required	Required	
CHEM 3786 <i>Biochemistry 2</i>				Required	
MATH 1572 <i>Calculus 2</i>	Required by some programs	Required by some programs	Required by some programs	Required by some programs	
ECON 2610 <i>Principles of Microeconomics</i>				Required	
PSYC 1560 <i>General Psychology</i>	Recommended	Recommended		Required	Required
SOC 1500 <i>Sociology</i>	Recommended				
PHIL 3725 <i>Biomedical Ethics</i>	Recommended				

Faculty Research Profiles

<http://web.ysu.edu/stem/biology>

- David K. Asch**, Ph.D., University of Kansas Medical Center, 1991. Dr. Asch uses molecular genetic techniques to study the functioning of normal and altered genes in a fungus model system. dkasch@ysu.edu
- Michael T. Butcher**, Ph.D., University of Calgary, 2006. Dr. Butcher studies the biomechanics of the musculoskeletal system in animal locomotion. He uses muscle fiber typing, electromyography, sonomicrometry, strain gauges, and high-speed videography to analyze the structure and function of muscle, bone, and tendon during locomotion. mtbutcher@ysu.edu
- Jonathan J. Caguiat**, Ph.D., Michigan State University, 1995. Dr. Caguiat uses genetic and molecular biology techniques to characterize metal resistant bacteria. jjcaguiat@ysu.edu
- Chester R. Cooper**, Ph.D., University of Texas, Austin, 1989. Dr. Cooper utilizes molecular biology techniques to examine the morphogenesis and virulence of pathogenic fungi with the goal of identifying novel anti-fungal targets. crcooper01@ysu.edu
- Thomas P. Diggins**, Ph.D., State University of New York at Buffalo, 1997. Dr. Diggins studies various aspects of aquatic and riparian (river corridor) ecology, including spatially and environmentally driven community assembly, successional processes, and the influence of invasive species. tpdiggins@ysu.edu
- Diana L. Fagan**, Ph.D., University of Texas Southwestern Medical Center, Dallas, 1985. Dr. Fagan uses monoclonal antibodies and genetically engineered proteins to develop treatments for *Staphylococcus aureus* infections and to detect toxins and other molecules. A second area of investigation examines the use of mesenchymal stromal cells in the treatment of hernias. dlfagan@ysu.edu
- Carl G. Johnston**, Ph.D., University of Cincinnati, 1992. Dr. Johnston uses molecular, microbial, and chemical techniques to study microbial communities and their interactions within humans, the natural environment, and contaminated systems. cjohnston@ysu.edu
- Johanna K. Krontiris-Litowitz**, Ph.D., Cleveland State University, 1984. Dr. Krontiris-Litowitz is studying the nervous system's role in long-term changes in cardiovascular functions such as high blood pressure or irregular heartbeats. jkrontirislitowitz@ysu.edu
- Heather E. Lorimer**, Ph.D., Columbia University, 1992. Dr. Lorimer studies the mechanisms by which DNA makes copies of itself using mitochondrial DNA in yeast as a model system. helorimer@ysu.edu
- Xiangjia Min**, Ph.D., University of Hawaii, 1995. Dr. Min is a bioinformatician with interests in DNA and protein sequence analysis and development of bioinformatics software tools and databases for genomic studies. xmin@ysu.edu
- Ian J. Renne**, Ph.D., Clemson University, 2001. Dr. Renne studies plant community ecology and the factors that drive diversity and community invasibility patterns. He also has interests in plant population biology, avian ecology and evolutionary dynamics of plant community development. ijrenne@ysu.edu
- Jill M. Tall**, Ph.D., Kent State University, 2001. Dr. Tall studies the effects of environmental factors on behaviors, and conducts both preclinical and clinical research investigations. jmtall@ysu.edu
- Gary R. Walker**, Ph.D., Wayne State University, 1984. Dr. Walker is a molecular cell biologist who uses proteomics and protein analysis to study myogenesis and titin biology. He is also involved with bio-fuels research as part of a research cluster in the College of STEM. grwalker@ysu.edu
- Mark D. Womble**, Ph.D., University of Michigan, 1983. Dr. Womble uses histological methods to study wound healing. mdwomble@ysu.edu

Certificate in Biomedical Research (CBR) Program

The CBR is designed to better prepare undergraduate students interested in pursuing advanced degrees in biomedical research (e.g., MS and PhD programs) as well as professional degrees in medicine, dentistry or physical therapy. The Certificate will not only ensure that students focus their education toward disciplines related to biomedicine, but also gain comprehensive clinical research experience.

CBR Admission and Program Requirements

Minimum grade-point average of 3.4 (on a 4.0 scale) in the prerequisite courses

Submission of the CBR Application and two CBR recommendation forms

Interview with the CBR Program Coordinator

Complete 26-29 semester hours and maintain a grade point average of 3.0 or better in the required and elective courses

CBR Prerequisite Courses

Course Name	Course Number	Semester Hours
General Biology: Molecules and Cells and Laboratory	BIOL 2601/2601L	4
General Biology: Organisms and Ecology and Laboratory	BIOL 2602/2602L	4
Human Physiology	BIOL 3730	4
Human Physiology Laboratory	BIOL 3730L	1

CBR Required Courses

Course Name	Course Number	Semester Hours
Introduction to Human Gross Anatomy and Laboratory	BIOL 3705/3705L	4
Introduction to Biomedical Research	BIOL 4896	2
Biometry# <i>or</i> Statistical Methods	BIOL 5853 STAT 3717	3 4
Selected Topics in Physiology	BIOL 4839	1
Internship in Biomedical Research*	BIOL 4897	6 total 3 + 3

#Students may take BIOL 5853 AND STAT 3717. In this case, BIOL 5853 Biometry will serve as an elective course in fulfillment of the CBR.

*Students must enroll for BIOL 4897 Internship in Biomedical Research for two, consecutive semesters.

CBR Elective Courses (9-12 semester hours)

Course Name	Course Number	Semester Hours
Clinical Immunology	BIOL 3703	3
Mammalogy	BIOL 3725	3
The Human Microbiome	BIOL 4809	3
Principles of Pharmacology	BIOL 4822	3
Cancer Biology	BIOL 4823	2
Microbial Physiology	BIOL 4829	3
Functional Neuroanatomy and Laboratory	BIOL 4830/4830L	4 + 0
Advanced Physiology: Integrative Mechanisms and Laboratory	BIOL 4834/4834L	3 + 1
Advanced Physiology: Regulatory Mechanisms and Laboratory	BIOL 4835/4835L	3 + 1
Vertebrate Histology and Laboratory	BIOL 5813/5813L	4 + 0
Behavioral Neuroscience and Laboratory	BIOL 5824/5824L	4 + 0
Principles of Neurobiology	BIOL 5832	4
Biometry# <i>see note</i>	BIOL 5853	3
Gross Anatomy 1 and Laboratory	BIOL 5868/5868L	4 + 0
Gross Anatomy 2 and Laboratory	BIOL 5869/5869L	4 + 0

Certificate in Anatomy & Physiology (CAP) Program

The CAP program includes an education founded in courses related to anatomy and physiology, as well as provides a student with the opportunity to gain a comprehensive laboratory experience. The curriculum is designed for undergraduate students interested in pursuing advanced degrees in anatomy and physiology (MS or PhD), professional degrees (medicine, dentistry, physical therapy or veterinary medicine) or employment in industry.

CAP Admission and Program Requirements

- Minimum grade-point average of 2.7 (on a 4.0 scale) in the prerequisite courses
- Submission of the CAP Application and two CAP recommendation forms
- Interview with the CAP Program Coordinator
- Complete 26-29 semester hours and maintain a grade point average of 3.0 or better in the required and elective courses

CAP Prerequisite Courses

Course Name	Course Number	Semester Hours
General Biology: Molecules and Cells	BIOL 2601/2601L	4
General Biology: Organisms and Ecology	BIOL 2602/2602L	4
Human Physiology	BIOL 3730	4
Human Physiology Laboratory	BIOL 3730L	1
Introduction to Human Gross Anatomy	BIOL 3705/3705L	4

CAP Required Courses

Course Name	Course Number	Semester Hours
Selected Topics in Physiology	BIOL 4839	1
Problems in Biology <i>or</i> Research in Physiology*	BIOL 4850 <i>or</i> BIOL 4898	6
Advanced Physiology Integrative Mechanisms	BIOL 4834/4834L	4
Vertebrate Histology	BIOL 5813/5813L	3
Biochemistry 1	CHEM 3785	3

*Students must enroll for either BIOL 4850 or 4898 for two, consecutive semesters.

CAP Elective Courses (9-12 semester hours are mandatory)

Course Name	Course Number	Semester Hours
Clinical Immunology	BIOL 3703	3
Mammalogy	BIOL 3725	3
Principles of Pharmacology	BIOL 4822	3
Cancer Biology	BIOL 4823	2
Microbial Physiology	BIOL 4829	3
Advanced Physiology Regulatory Mechanisms	BIOL 4835	3
Advanced Physiology Regulatory Mechanisms Laboratory	BIOL 4835L	1
Cell Biology: Molecular Mechanisms	BIOL 4836	3
Behavioral Neuroscience	BIOL 5824/5824L	4
Functional Neuroanatomy	BIOL 5829/5829L	4
Principles of Neurobiology	BIOL 5832	4
Gross Anatomy 1	BIOL 5868/5868L	4
Gross Anatomy 2	BIOL 5869/5869L	4

YSU - Center for Student Progress (CSP)

Frequently Asked Questions about the CSP Student Tutorial Services

When should I seek assistance from a tutor?

As early as possible in the semester! Appointments are scheduled on a first-come, first-serve basis, so **DON'T WAIT!** The following are other good reasons to seek a tutor:

- If you want to maintain good grades
- If you want help with study skills or preparing for tests
- If you are having difficulty with homework assignments or understanding lectures
- If you are performing poorly on tests
- If you are falling behind in class

How do I make an appointment with a tutor?

Appointments are scheduled online through TutorTrac. You are encouraged to come to the CSP for assistance in making an appointment; however, for convenience, you can access this website from any campus computer that has Internet capability. The web address is <http://150.134.190.167/TutorTrac/>. Follow the steps for creating an account if it's the first time you have used the system.

What if a tutor is not available at the times I am available?

You can complete a "Request for Tutoring" application, available in the Tutorial Center in the CSP. Every effort will be made to accommodate your request, whether by adjusting current tutors' schedules or by hiring new tutors. Beginning fall 2012, online tutoring is also available in select subjects. For details, inquire with CSP Student Tutorial Services staff.

How frequently will I meet with my tutor?

You will meet with the same tutor at the same time and day every week for the remainder of the semester.

How long are the appointments?

Appointments are generally 50 minutes in length. This allows you and/or your tutor to have a few minutes to get to class after the session is over. If you need additional time, you can make arrangements through TutorTrac to schedule more time with the same tutor if they are available, or with a different tutor.

What if I have to cancel my appointment?

You must call the secretary in the CSP as soon as possible at 330-941-7253.

What's the policy regarding missed appointments?

Because there is such high demand for our services, our policy is that if you miss two consecutive appointments, you will forfeit the appointment time with the tutor and be removed from the tutor's schedule. This allows the tutor to accommodate another student. Also, you will be removed from the tutor's schedule if you miss your first appointment.

What if I only need the tutor one time?

We encourage you to continue to see your tutor every week. However, if you feel that the tutor has helped you to clarify the concepts with which you are struggling, thank the tutor and let them know that you will no longer be attending. This is important because the tutor can then serve another student.

Is there a limit to the number of appointments I can schedule?

Yes. Our policy is that you can schedule three appointments per week. Further, you can schedule a maximum of two appointments per week in the same subject.

Are group tutoring sessions offered?

Yes. Tutors are trained to facilitate the learning of individual students as well as small groups of students. If multiple requests are received for tutoring in the same class with the same professor, a small group will be established and tutoring for that class will be offered at the same day and time every week.

What should I bring to the tutoring session?

- Your syllabus, notebook, textbook, past tests and in-class assignments
- Questions
- A good attitude
- A willingness to actively participate in the tutoring session

What should I do when I arrive for my appointment?

Arrive on time (or a few minutes early so that you can mentally prepare yourself for tutoring) and LOG IN to TutorTrac at one of the computer terminals.

What can I expect from my tutor?

- Confidentiality, respect and patience
- Concerted effort to aid in your understanding of difficult material
- Help with study skills
- Knowledge about the subject area being tutored
- Ability to help identify learning obstacles and ways to overcome them
- Ability to model effective student behaviors
- Ability to make referrals to other places on campus that may provide you with assistance

Are there things my tutor will NOT do?

Yes. Tutors will **NOT** do the following:

- **Your homework.**
You will need to have attempted your homework assignment before coming to tutoring. Make a note of the concepts with which you are struggling. Then, you and your tutor can review these concepts and work through similar problems.
- **Rescue you.**
Nothing takes the place of consistent hard work throughout the semester. If you fail to do this, showing up for tutoring a week before final exams will not help. Tutors cannot help you recover from a semester of poor time management. You should come to tutoring early in the semester and often thereafter.
- **Take responsibility for your learning.**
The tutor is not here to do the work **FOR** you. The tutor is here to help you study your subject successfully. You will have to attend class regularly, participate in class, do your homework assignments, read your textbook, and develop a relationship with your instructor.
- **Have all the answers to every question.**
CSP tutors are well trained and knowledgeable about the subject they tutor, but they cannot be expected to know everything. However, you **CAN** expect your tutor to model the steps a successful student would use to find the solutions.

For any questions regarding the CSP Student Tutorial Services please contact: Robin Sakonyi White, Assistant Director, Student Tutorial Services, Center for Student Progress, Kilcawley Center West, rlsakonyi@ysu.edu or call 330-941-2956.

Hours of Operation: Mondays 8:00 A.M. – 7:00 P.M. and Tuesdays – Fridays 8:00 A.M. – 5:00 P.M.

Frequently Asked Questions about the CSP Supplemental Instruction (SI) Services

What is SI?

Supplemental Instruction (SI) offers a series of weekly review sessions associated with a historically difficult course. SI is provided for *all students* who want to improve their understanding of the course material and improve their grades.

Attendance at sessions is voluntary and free. For you the student, it's a chance to get together with people in your class to compare notes, to discuss important concepts, develop strategies for studying the subject, and to test yourselves before your professor does, so that when he/she does, you'll be ready. At each session you will be guided through this material by your SI leader, a student who has previously taken the course and has demonstrated competency in this area.

What's a SI Leader?

Have you ever wished you could do something over, knowing what you do now? SI leaders are students themselves and are prepared to share with you what they have learned over the years about how to study. They know the course content and are anxious to help guide you through it. They'll be in class with you every day, hearing what you hear and reading what you read. What they don't do is lecture; their job is to help you think about the lectures you hear and the books you read, and then put it all together during the SI review sessions. SI can help you learn the course material more efficiently.

When do SI review sessions start?

On the first day of class you will fill out a short survey to let the SI leader know your class schedule. Your SI leader will set up three sessions each week at times that are best for a majority of the students taking this class. You can attend one, two, or all three every week (the choice is yours) and each one will be different because there is new material to discuss. SI review sessions are informal. Bring your notes; bring your textbook; bring your questions. You will receive a bookmark and email with the days and times of the sessions.

What's in it for me?

If you attend SI sessions regularly, chances are you'll earn a higher grade than if you studied alone. You'll have developed a better understanding of course content as well as more effective ways of studying. Odds are that attending SI for this class will help you in other classes too.

Here's what SI participants say:

"I love the worksheets, games and practice tests!", "People really work together in SI", "I would have never gotten through this course if I hadn't gone to SI.", "Some of my closest friends I met in SI.", "I should have started coming to the sessions earlier!", "_____, my SI Leader was great!", "SI helps me keep up and think about how things work", "I didn't know I would sing for A&P," "Helped to explain things at the board" ... *So, come join the fun and review in SI!*

For any questions regarding the CSP SI program, please contact: Sue Mark-Sracic, Assistant Director, Supplemental Instruction Services, Center for Student Progress, Kilcawley Center West, symarksracic@ysu.edu or call 330-941-2375.