General Biology I (BIOL 160)

Fall 2014

Section 04: T, TH 10:00 to 11:15 Hailstones 3
F 1:00-1:50 TBA

Instructor: Ann M. Ray, Ph.D.
Phone: 745-2054
Email: raya6@xavier.edu

Office: Albers 3
Office hours: T, TH: 3:30-4:30 pm (ALB 202); F: 10:00 -11:00 am (ALB 3)
by appointment, and whenever my door is open.

NOTE: I do not have any office hours or appointment times on Wednesday, because that is the time I reserve for research. However, I have three dedicated office hours each week (see above), and I am available on any day other than Wednesday, by appointment.

THE PROCEDURES AND SCHEDULE IN THIS SYLLABUS ARE SUBJECT TO REVISION.

Course Description
General Biology I introduces principles of molecular, cellular, and organismal biology, emphasizing the physiology of vertebrates. This is the introductory course for BIOL, NATS, ENSC and APBI majors, providing preparation for 200 and 300 level biology courses.

Textbook
We will be using Campbell BIOLOGY; the most recent edition is the 10th, although you may use any edition. We will also be using the Mastering Biology online site, and Learning Catalytics.

There are several options for accessing the text.

You can purchase access through Canvas. You will need a class code, listed below. You will need a credit card to buy these things online, or you can use PayPal. If you are not able to use these, no problem. Come see me when school starts and I will buy them for you on my card in exchange for your cash.

If you want a paper book:
We will have hard copy books on reserve in the library so you don’t have to buy one.

It is possible to rent books, either from the bookstore or from an independent service. Check now, though, before the supply is exhausted.

You can save a lot of money by looking for older editions in online bookstores or at used bookstores. You may use ANY BIOLOGY TEXTBOOK published in the last 5 years if you would like. Obviously, the chapter and page numbers will not be the same as the chapters and page numbers in Campbell 10th ed.

Most expensive option: to buy a combo package from the Xavier bookstore (sorry bookstore, we still love you.)

Some people like physical textbook copies. Some people don’t like textbooks. I don’t make any money at all from the sale of this book, so it doesn’t matter to me one bit whether you buy it or rent it or borrow it.

I will not use or refer to the “Virtual Labs”, so I do not recommend purchasing access to this software.

Online Resources
You can access Canvas through the XU website. Test scores and announcements will be posted here. I will also post lecture outlines and PowerPoints, and lecture synopses. You should listen and make notes on any recorded
lectures PRIOR to class. You will be allowed to use your notes for in-class activities. I refuse to police note taking, but I will assure you will likely do very poorly in this class if you do not take your own notes. It’s not the notes that are important to learning, it is the process of note taking that is important to learning.

PowerPoints are not infallible documents. They do not contain all the answers to all the questions on the exams, nor should they because why then would you need to attend class? Verbatim memorization of PowerPoint slides will not be an effective way to study for exams. The PowerPoints and the lecture outlines are your study gifts from me. No additional study guides will be posted.

If you will be accessing Canvas from a personal computer, you will need software that will allow you to open PDF, and Microsoft Office files (e.g. Excel, Word, and PowerPoint). It is your responsibility to learn to use your computer. You will not be excused from any homework or written assignments because of computer problems.

We will also use Pearson’s Learning Catalytics program for in-class activities. Please bring a wireless-enabled device to class with you each day (e.g., anything that can get on the internet, such as a cell phone, tablet, laptop, or iPod). Wifi is available and reliable all over campus. Learning Catalytics is accessible through Mastering Biology, which is linked to Canvas.

**Homework**
Assignments will be posted within Mastering Biology (which you can find though Canvas.)

Why homework? Many students entering college or taking a survey course for the first time need help developing study and time management skills. Since I cannot come to your dorm rooms or houses to help you prepare for exams, homework assignments are my way to help you learn these important skills. In addition, many students are frustrated that there are not many points available in college courses. They want more opportunities for credit in the course. **Mastering Biology is an opportunity for students to earn credit outside of exams.**

You will need to purchase the version of Mastering Biology that includes Learning Catalytics. This will cost $66 (Mastering Biology) + $12 (subscription to Learning Catalytics).

Buyer beware! There is only one version of Mastering Biology that will interface with Canvas and that includes access to Learning Catalytics. The codes for Mastering Biology that are packaged with “international” or “global” editions of the textbook will not work for our course. If you wish to purchase a paper book online, I recommend that you purchase it without Mastering Biology and then purchase access to the software separately (through Canvas or at the bookstore). If you purchase through Canvas you will need the course ID (below) and a credit card or PayPal account. Please buy access through the link on Canvas or through the bookstore. If you buy access by any other method, I cannot guarantee that your code will work.

To set up your Pearson account in Mastering Biology, you will need:
1. Email address
2. Your Xavier student ID number
3. The Course ID FALL2014RAY

If you have a Pearson account that you’ve created for another course (e.g. Mastering Chemistry, etc.) you should use that same login.

**HIGHLY RECOMMENDED:** When you register for Mastering Biology through Canvas, you will be presented with three options:
1. Enter Your Access Code
2. Purchase Online Access
3. Use 14-day grace Period

Please take advantage of the 14-day grace period. The grace period gives you full access to all the digital material, as well as an eBook. This gives you two weeks to ensure that you’re going to continue in the course. After two weeks, you will need to purchase online access or enter an Access Code in which you purchase at the campus bookstore. Do not purchase an access code anywhere other than through Canvas or the bookstore.

If you have technical problems with Mastering Biology try these things, in this order:
   1. Run a browser check. Download the necessary software. Restart your browser.
   2. Click on the “Support” link at the bottom of the Mastering Biology page. Troubleshoot. Check your system requirements.
   3. See the Xavier Help Desk.
   4. Call the numbers listed under “Help” on the software if all else fails.

NEITHER YOUR SI LEADER NOR I CAN HELP YOU WITH MASTERING BIOLOGY. The Xavier Help Desk may tell you that you need to talk to your professor. That is a lie. When it comes to Mastering Biology, you are like Frodo Baggins or Harry Potter—you have to face your enemy and solve the problem by yourself. The telephone help for Mastering Biology is horrible, but if you have an unsolvable problem, you will have to call them. I cannot call them for you, because the technician will ask what error code or what version of Flash Player you have and I don’t have your error code, so I just wasted my time. If you call them, expect to be on hold for at least 40 minutes.

Homework assignments are due at 11:00 each Friday (except for Thanksgiving week). Late assignments will be penalized 35% for each hour late—there will be absolutely no exceptions for any reason; so please don’t ask, because I will tell you no and we will both be embarrassed. These assignments are a review of the material covered in class during the previous week and you should use the assignments as a way to assess your readiness for exams. You may use your book/notes (although, you should try to answer without notes) and you may work with friends.

There will be 15 homework assignments. Each is worth 3 points, for a total of 45 points. For all homework assignments, you will get a % correct score; multiply by 3 to get your score for the assignment. You get three chances to answer a question correctly. There are no penalties for looking at hints.

It is YOUR responsibility to make sure that you have access to Mastering Biology from the beginning of the semester and that you complete your assignments on time. I recommend logging in and completing the introductory assignment ASAP. Please use the computer you will be using to regularly access the program (which means you should use your new laptop if you are getting a new laptop). I will not give ANY extensions because your access code is in the mail or you are trying to learn to use your computer. It is time to be adults. The only exception will be for students on the US GI Bill who are experiencing delays in tuition payments.

Mastering Biology also has a “Study Area” which will construct quizzes and practice tests for you. These are optional and will not be graded.

**Supplemental Instruction**
The Learning Assistance Center offers Supplemental Instruction (SI) for General Biology I. SI leaders are upperclasspersons who have earned good grades in Gen Bio I and II. SI leaders will review difficult concepts, lead activities, share tips for taking exams, and hand out worksheets. It is the only way to get copies of practice
tests. SI groups have been shown to have a positive effect on achievement of students enrolled in this course. Please take advantage of this terrific (and free) resource!

Your SI leader is: Madisynn Beckett
Days, times and location TBA

Accommodations
I welcome the opportunity to accommodate the needs of all learners. If you have a documented disability, please contact the LAC at 745-3214 to make appropriate arrangements. It can take several weeks to process the paperwork needed for accommodations, so act early.

Most students enrolled in the course are first semester students of traditional college age. If you are not a member of this demographic, please be aware that some of the activities and assignments will be geared towards the majority and may seem superfluous. I ask you to be patient and accommodating. Your classmates and I will benefit from the wealth of your experience, your wisdom, and your maturity. You will benefit because first year students are funny.

Attendance
I expect you to attend class. Attendance will be recorded via graded in-class activities (Learning Catalytics). Attendance will not necessarily be recorded every day, and I will not announce the dates attendance will be taken. You get three unexcused absences, meaning that you will not lose any points if you miss three dates where I take attendance. People with perfect attendance may not use attendance points as extra credit.

In the case of truly excessive absences, I reserve the right to deduct up to 10 points from your class total (at my discretion). If you are absent for more than four successive classes (without appropriate notification), I will contact your advisor, and the office of student success and retention. Disappearing students will earn a grade of VF (failure to withdraw).

Behavior
This is the beginning of your professional career, and as such, I expect you to act professionally. That means treating me and your other professors as you would a colleague or an employer. Your science professors (including me) will write the letters of recommendation for your applications to programs/schools in the future. Please refrain from whining, throwing temper tantrums, sighing dramatically during class, grade grubbing, pestering me or the chair of the department with long email diatribes, asking your parents to call/email me about your grades, or pretty any use of the words “no fair.” I am always happy to listen to grievances or suggestions, but you need to use your words to express your concerns like an adult.

I expect you to behave appropriately in class. Turn your cell phone to silent. Avoid texting, Snap chatting, looking at Twitter, or doing things unrelated to class. If you are smiling at your crotch, I know you are not doing something related to the class. If you are holding your phone in front of your face and scrolling with your thumb, I know you are not doing something related to the class. If you are looking at something on your computer and everyone else is looking at your computer screen and smiling bemusedly, you are probably not doing something related to the class. I get distracted when everyone is grinning at a laptop.

I reserve the right to ban anything that interferes with the learning environment.

Exams
Exams will take place on Fridays at 1:00. Therefore, I strongly encourage you to arrange your class and practice/rehearsal schedules so that you do not have time conflicts with the Friday exam time. Exams will cover
information from lectures and material from any additional readings, activities, or assignments. There will be at least one exam question from every Friday session. **The first exam will also contain questions about material covered in this syllabus.** Exams will contain multiple choice or true/false questions. Dates and point values for exams are listed in the schedule.

You MUST correctly fill in your Name and 9 digits of a memorable number on your Scantron sheet. You must also fill in test form “A”. You must not doodle or scribble on the Scantron sheet. After the first exam, I WILL DEDUCT 4 POINTS FOR EACH INCORRECTLY FILLED IN ITEM ON SCANTRON SHEETS, OR FOR DOODLING. NO EXCEPTIONS. C’mon people.

To discourage cheating or the appearance of cheating, all notes, backpacks, and bags must be placed at the front of the classroom during exams. Cell phones and other electronic devices that communicate with the outside world should be turned to silent and placed in your bag for the duration of the exam. You may not wear earphones/earbuds/earpieces during the exam (although earplugs that block noise are allowed and, of course, hearing aids and other medical devices are allowed). The penalty for being caught with an unauthorized electronic device will be a score of 0 for the exam.

You may use calculators on exams that containing calculations. However, you may only use actual calculators; you may NOT use your cell phone/tablet computer as a calculator, even if it is the only calculator you have.

Please use the bathroom and get a drink of water before the exam. Do not drink gallons of coffee or soda before or during the exam. Unless you have a medical condition, you will not be allowed to leave the room during the exam. You think this is harsh, but Dr. Engle once saw a student pick a notebook out of the garbage can in the women’s restroom during an exam-time bathroom break. I can’t make this stuff up.

A word on test format: Multiple-choice tests are just one method (among many) to assess learning. Multiple-choice exams have their shortcomings, as do all assessment methods. Despite their faults, multiple-choice exams are gate keepers for the future professions of most of the students in this course. The MCAT is required for entry into medical school, the PCAT for pharmacy school, the DSAT for future dentists, the VCAT for veterinary college, the GRE for future graduate students—these are all (at least in part) multiple-choice exams. Licensing exams for medical doctors (USMLE) and teachers (PRAXIS) and physical therapists (NPTE) and nurse practitioners (ANCC) are also composed of multiple-choice questions. It is my responsibility to test you in the way that you will be tested later. It is in your best interest to learn to take multiple-choice exams. This skill, as much as your grades, will determine if you get into the graduate or professional school, and later will determine if you obtain a license to practice what you have studied.

Please note the dates of your exams NOW. Professors of Gen Bio divide the semester into even sections to keep the amount of material in exams manageable. Instructors of other courses divide the semester equally as well, and as a result you will likely have multiple exams within a short period of time.

If you are an athlete and miss an exam because of a meet, you must take the exam **before** you leave, or I will provide a team official a copy of the exam for you to take on the road. Please contact your athletic advisor at least a week in advance to schedule the exam on the road. If I do not receive notification at least 48 hours in advance of your trip, you must make up the exam at the end of the semester (regardless of who is at fault). If you are an athletic trainer or pep band member, you should also make arrangements to take the exam before you leave, or you will need to ask your supervisor to contact me for a copy of the exam to take on the road. Otherwise, you can make up the exam at the end of the semester.
Students enrolled in classes that conflict with Friday exams (such as chemistry seminar or upper level courses in your major) should see me before the first exam to make arrangements to take the exam early on Fridays.

If you know a week or more in advance that you will miss an exam because of a medical procedure, a religious observance, ROTC training, or other legitimate, documentable conflict, you make take the exam early. You must provide me with documentation (within reason). Vacations, football games, your ride to Toledo leaving early for Thanksgiving break, Xavier Christmas, hangovers, a long-lost auntie arriving in Chicago, or other such things are NOT legitimate reasons. I cannot accommodate the individual scheduling needs of 50+ students. I love you, I care deeply about you and your well-being, but your schedules are crazy and it is logistically impossible for me to work around all of you and retain my sanity.

If you have an emergency on the day of an exam, you may make up the exam at the end of the semester. However, you must email me as soon as possible to explain your absence. **IF YOU OR AN ASSOCIATE DO NOT EMAIL ME WITHIN 36 HOURS OF THE EXAM, YOU WILL NOT BE ALLOWED TO MAKE UP THE EXAM AND YOU WILL RECEIVE A SCORE OF 0 FOR THAT EXAM.** You will not be permitted to make up more than one exam at the end of the semester without a note from the associate dean.

All makeup exams will be given at the end of the semester. They will be a different exam than that which was given to the rest of the class. This policy is as a result of cheating in past years.

If you miss the final exam with a suitable excuse, you will receive an Incomplete for the course. At the beginning of next semester, you must contact me within one week for a make-up exam. If you do not contact me within one week, your score for the exam will be 0. If you miss the final exam without a suitable excuse, your grade for that exam will be 0.

To reiterate my policy on conflicts with exams: if you have a legitimate, documentable conflict, athletic or otherwise, you make take the exam early. Athletes and persons operating within an official capacity in association with an athletic team have the option to take the exam while on the road. If you cannot take the exam early, you will have to take a makeup exam at the end of the semester. If you have an emergency on the day of the exam, you may make up that exam at the end of the semester. You may not take more than one makeup exam at the end of the semester without a note from the associate dean.

If you have a major illness or other emergency that causes you to miss more than two or three days of class, you or your associates should contact the associate dean’s office. The personnel there will send an official notice to all of your instructors. This is especially important for extended absences that might involve making up several exams.

**Reviewing exams:** One strategy to assess your performance in the class and to determine how well you are studying is to review exams. Error sheets and exam keys will be made available in my office during normal office hours for two weeks after each exam. Due to cheating and sharing of exam questions in previous years, and due to the concerns of other faculty members, students will not be allowed to photocopy, photograph, type, or hand-copy questions from exams. You may make general notes on the topics and concepts, but you may not copy any exam questions. If you are caught copying, the penalty will be a failing grade for that exam.

**Academic Honesty**
Science is collaborative, and seldom does any scientist work alone. You may work with others on homework, but make sure you are benefiting intellectually from the collaboration—not simply copying.
Otherwise the policy is simple: don’t cheat. Demonstrate integrity. The value of your education decreases whenever you or one of your peers cheats to earn grades or a degree. Cheating hurts other students and harms the reputation of the university. Cheating insults me. It makes me want to quit my job and move into a camper on a beach in Oregon. Therefore, the penalty for academic dishonesty in this course is a failing grade. Per university policy, academic dishonesty will be reported to the dean. It is your responsibility to acquaint yourself with what constitutes academic dishonesty.

All students will be required to sign a statement of academic honesty on each exam stating that you have not received or given unauthorized assistance for the exam. Among other things, unauthorized assistance includes sharing or discussing exam questions with students who have not yet taken the exam.

**Auditors**
If you earned a 4 or 5 on an AP Biology exam, you have credit for Gen Bio I and you may audit this course. You have two options: you may attend all classes and complete homework assignments, or you make take the exams (and score higher than 80%). I will record attendance of those students who select the class participation option. If you have AP credit, please see the form called “Information for Auditors” under Course Documents on Blackboard. Please fill this form out and return to me by September 2. It is your responsibility to make sure that you are registered for the class as an auditor.

**Grading**
Grades are an assessment of how you are developing your understanding of fundamental biological concepts (see Course Goals). Grades give you feedback that you can use to modify/improve your study habits while you are enrolled in the course. You can use your final grade to determine if you are prepared to continue in biology. Grades also allow people who do not know you to predict your ability to be successful in an academic environment (e.g. research internship, medical school, graduate school).

There are 1000 possible points in this class. These points will come from Mastering Biology homework assignments, in-class activities, other assignments, attendance at Friday sessions, and exams. This is an extremely large amount of points for a college class, and it provides ample opportunity to succeed.

**There is NO extra credit available in this class.** That is crazy. This is college, not 7th grade. Please do not ask. It is really embarrassing.

**Mastering Biology homework: 45 points, 4.5% of total grade**
15 assignments worth 3 points each; to calculate your total score, multiply the percent correct by 3 points.

**Four paper assignments: 75 points, 7.5% of total grade**
- Time Log: 15 points
- Preparing for your advising appointment: 20 points
- End of semester reality check: 20 points
- Additional paper assignment/s (TBA): 20 points

Intentionally sarcastic responses will be awarded 0 points for the assignment in addition to a 10 point penalty on the overall paper assignment grade (for unprofessional behavior.) The instructor will determine what constitutes an intentionally sarcastic response.

**In-class activities (Including group work): 30 points (weighted score)**
You will need a wireless-enabled device and Learning Catalytics (find it through Mastering Biology) to participate in in-class activities. A wireless-enabled device could be a cell phone, an iPod, a laptop, a tablet, etc. If you do
not own and are unable to obtain a wireless-enabled device, please discuss options with me. The three lowest in-class scores are dropped.

**Attendance at five Friday sessions: 50 points, 5% of total grade**

Five total items at 10 points each

**Exams: 800 points, 80% of total grade**

Six mid-term exams worth 100 points each, and a comprehensive final exam worth 200 points. All exams are on Fridays at 1:00. The final exam will be held December 16 at 3:00 pm.

**Grading Scale**

A = exceptionally qualified to continue in biology (93% = ≥930 points)
A- = especially well qualified to continue in biology (90% = 900-929)
B+ = very well qualified to continue in biology (88% = 880-899)
B = well qualified to continue in biology (84% = 840-879)
B- = qualified to continue in biology (80% = 800-839)
C+ = minimally prepared to continue in biology (77% = 770-799)
C = minimally prepared to continue in biology if you improve your study skills/motivation (73% = 730-769)
C- = not prepared to continue in biology unless you greatly improve your study skills/motivation (70% =700-729)
D+ = passing for Core Curriculum credit, but not sufficiently prepared to continue in biology (67% = 670-699)
D = minimum passing for Core Curriculum credit, but not prepared to continue in biology (60% = 600-669)
F = no credit (below 60% = anything less than 600)

You must earn at least a C- in BIOL 160, 161, 162 and 163 to enroll in upper level biology and environmental science courses.

**Strategies for Success:**

Successful performance in this course will require a large amount of factual memorization, but most importantly, conceptual understanding, as manifested by the synthesis and application of knowledge to solve problems.

This course counts for three credit hours. For science courses, you should expect to spend 2-3 hours studying for each hour you spend in lecture. Thus, you should expect to spend between 6 and 9 hours each week (outside of lecture) working on Gen Bio I.

- **Before Class:** Get “big picture” in preparation to understand the lecture.
  1. Download notes/outline from Canvas.
  2. Listen to the lecture summary (if available)
  3. Read the Key Concept headings and sub-headings for the chapter, as this helps one understand how information fits together into the whole.
  4. Complete the pre-class assignment/outline

- **During Class:** Actively listen and participate to connect concepts.
  1. Take thorough notes. Take notes as if you were taking them for a best friend who was solely dependent upon the information you write down to be successful. Some research suggests that students learn better if they hand write, rather than type notes. If you have trouble taking notes, you may make an audio recording. Audio recordings are for personal use only and should not be posted publicly.
  2. Try to ask conceptual or higher level questions in class.
3. Try to make connections between previous and current information.
4. Engage with your group members and with the material.

- **After Class: Assess your understanding.**
  1. Review your notes the same day. Make notes in the margin concerning information that is unclear.
  2. Obtain clarification of unclear information from the book, a peer, SI leader, tutor, professor, or any other reliable resource. Use office hours. I have an open door policy, so you can visit me (the professor) any time I am in my office.
  3. Re-write your notes or make flash cards. This is very time-consuming. However, the practice is extremely valuable in helping most students better understand the information. You can also use the flash cards to quickly and efficiently review your notes for future courses. I suggest that you form study groups with your classmates. However, you should make sure that you prepare and stay mostly on task (e.g. talking about biology>flirting/gossiping).
  4. Complete the weekly review assignment on Mastering Biology; try not to use your notes to see if you really understand the material.
  5. Solve MORE problems to assess your understanding. The textbook has good questions, and the “Study Area” of Mastering Biology has quizzes and practice tests to help you assess your learning. Always practice answering the most difficult questions.
  6. Videos abound on YouTube and other internet sites. Look for them if you are a visual learner or if you are having trouble visualizing or remembering concepts. The Khan Academy website is especially good (https://www.khanacademy.org/science/biology).
  7. Attend Supplemental Instruction on a regular basis.

ASK FOR HELP. It is much easier to turn your grades around in September than in November.

**Schedule**
The schedule and procedures in this course are subject to change.

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<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Before class: Text to skim/read</th>
<th>Review assignment and other notes</th>
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<tbody>
<tr>
<td>1</td>
<td>8/26 Tu</td>
<td>Introduction, the process of science, Ch. 1</td>
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<td>8/28 Th</td>
<td>Tour of the Cell</td>
<td>Ch. 6</td>
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<td>8/29 F</td>
<td>Meet in location TBA: Learning Style Assessment</td>
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<td>Week 1 review assignment due at 11 am</td>
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<td>2</td>
<td>9/2 Tu</td>
<td>High school chemistry review; Water, Carbon, and Biological Molecules</td>
<td>Ch. 3, 4, 5 (Ch. 2 if needed)</td>
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<td>9/4 Th</td>
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<td>Ch. 3, 4, 5</td>
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<td>9/5 F</td>
<td>TBA</td>
<td>Week 2 review assignment due 11 am</td>
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<td>3</td>
<td>9/9 Tu</td>
<td>Metabolism</td>
<td>Ch. 8</td>
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<td>Remember to go to SI this week and every</td>
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<td>9/11</td>
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<td>Membranes</td>
<td>Ch. 7</td>
<td>week!</td>
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<td>9/12</td>
<td>F</td>
<td>Test 1 Ch. 1 - 8 (not 7) 100 points Room TBA</td>
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<td>Week 3 review assignment due at 11 am</td>
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<td>4</td>
<td>9/16</td>
<td>Chemical Signals</td>
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<td>9/18</td>
<td>Th</td>
<td>Photosynthesis</td>
<td>Ch. 10</td>
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<td>9/19</td>
<td>F</td>
<td>Guest speaker: TBA</td>
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<td>Week 4 review assignment due at 11 am</td>
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<td>5</td>
<td>9/23</td>
<td>Cellular Respiration</td>
<td>Ch. 9</td>
<td>Paper Assignment 1 - Time Log 1 (complete</td>
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<td>9/25</td>
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<td>Mitosis</td>
<td>Ch. 12</td>
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<td>9/26</td>
<td>F</td>
<td>Test 2 Ch. 7, 11, 9, 10, 12: 100 points</td>
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<td>Week 5 review assignment due at 11 am</td>
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<td>6</td>
<td>9/30</td>
<td>Meiosis and Sexual Life Cycles</td>
<td>Ch. 13</td>
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<td>10/2</td>
<td>Th</td>
<td>Mendel and Genes</td>
<td>Ch. 14</td>
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<td>10/3</td>
<td>F</td>
<td>Test 3.1: Ch. 12, 13 (ish): 50 points</td>
<td></td>
<td>Week 6 review assignment due at 11 am</td>
</tr>
<tr>
<td>7</td>
<td>10/7</td>
<td>Chromosomal Basis of Inheritance</td>
<td>Ch. 15</td>
<td>Week 7 review assignment due at 11 am</td>
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<td></td>
<td>Tu</td>
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<td></td>
<td>WEDNESDAY!!!!!!!</td>
</tr>
<tr>
<td>10/9</td>
<td>Th</td>
<td>No class: Fall Holiday</td>
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<tr>
<td>10/10</td>
<td>F</td>
<td>No class: Fall Holiday</td>
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<td>8</td>
<td>10/14</td>
<td>Molecular Basis of Inheritance</td>
<td>Ch. 16</td>
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<td>10/16</td>
<td>Th</td>
<td>Genes to Proteins</td>
<td>Ch. 17</td>
<td>Paper Assignment 2 – Preparing for your</td>
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<td>advising appointment</td>
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<td>10/17</td>
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<td>Test 3.2 Ch. 14, 15, 16 (ish) 50 points</td>
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<td>Week 8 review assignment due 11 am</td>
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<tr>
<td>9</td>
<td>10/21</td>
<td>Genetics of Viruses, Gene Expression</td>
<td>Ch. 18,</td>
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<tr>
<td></td>
<td>Tu</td>
<td></td>
<td>19</td>
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<tr>
<td>Date</td>
<td>Event</td>
<td>Chapter/Section</td>
<td>Notes</td>
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<tr>
<td>10/23 Th</td>
<td>DNA Technology</td>
<td>Ch. 20</td>
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<tr>
<td>10/24 F</td>
<td>Guest speaker: TBA</td>
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<td>Week 9 review assignment due at 11 am</td>
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<tr>
<td>10/28 Tu</td>
<td>Animal Structure and Function</td>
<td>Ch. 40</td>
<td></td>
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<tr>
<td>10/30 Th</td>
<td>Animal Nutrition</td>
<td>Ch. 41</td>
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<td>10/31 F</td>
<td>Test 4 Ch. 17, 18, 19, 20 100 pts</td>
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<td>Week 10 review assignment due at 11 am</td>
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<td>11/4 Tu</td>
<td>Gas Exchange</td>
<td>Ch. 42A pp 915-916, 933-943</td>
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<tr>
<td>11/6 Th</td>
<td>Circulation</td>
<td>Ch. 42B pp 916-931</td>
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<td>11/7 F</td>
<td>Guest speaker: TBA</td>
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<td>Week 11 review assignment due at 11 am</td>
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<td>11/11 Tu</td>
<td>Excretion</td>
<td>Ch. 44</td>
<td></td>
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<td>11/13 Th</td>
<td>Immunity</td>
<td>Ch. 43</td>
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<tr>
<td>11/14 F</td>
<td>Test 5 Ch. 40, 41, 42, 44 100 points</td>
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<td>Week 12 review assignment due at 11 am</td>
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<tr>
<td>11/18 Tu</td>
<td>Animal Reproduction</td>
<td>Ch. 46</td>
<td></td>
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<td>11/20 Th</td>
<td>Animal Development</td>
<td>Ch. 47</td>
<td>Paper assignment 3 – End of semester reality check</td>
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<td>11/21 F</td>
<td>Guest speaker: TBA</td>
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<td>Week 13 review assignment due at 11 am</td>
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<tr>
<td>11/25 Tu</td>
<td>Nervous System</td>
<td>Ch. 48</td>
<td>NO REVIEW ASSIGNMENT THIS WEEK</td>
<td></td>
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<tr>
<td>11/26-30</td>
<td>No classes: Thanksgiving Break</td>
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<tr>
<td>12/2 Tu</td>
<td>Nervous System, Sensory Mechanisms</td>
<td>Ch. 49, 50A</td>
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</table>

November 24: deadline to withdraw!!!!!!! If you are failing the course, you should withdraw.
Course Goals

When you are finished with this course, you should be able to:

• define a “testable hypothesis” and distinguish between a hypothesis and a prediction
• define “scientific theory” and explain how a scientific theory differs from a hypothesis and from colloquial uses of the word “theory”
• name the seven characteristics common to all living things
• list the levels of biological organization and apply them to the study of vertebrate systems
• compare and contrast the structure of prokaryotic and eukaryotic cells
• describe the structure and function of organelles
• explain the relationship between chemistry and biology and describe how chemical reactions drive biological processes
• name the four major kinds of biological macromolecules and be able to recognize their structure
• define metabolism and homeostasis and explain their roles in living systems
• describe the structure and function of biological membranes, including the role in chemical signaling
• describe the process and products of cellular respiration and explain its role in living systems
• describe the process and products of photosynthesis
- describe mitosis and meiosis and be able to compare and contrast these processes
- distinguish between “gene”, “allele”, “locus”, “genotype”, and “phenotype”
- describe inheritance in living systems, both at a chromosomal and molecular level
- construct a Punnett square and conduct a pedigree analysis
- state and explain the “Central Dogma” of molecular biology
- describe the processes of DNA replication, transcription, and translation
- explain how cells in a body contain the same genetic information, but have different structures and functions
- describe current techniques in molecular biology and be able to apply these concepts to real situations
- describe the structure and function of various cell types in the body
- name the four basic tissue types in the body
- describe the structure and function of the digestive system of vertebrates
- describe the structure and function of the cardiopulmonary system of vertebrates
- describe the structure and function of the immune system of vertebrates
- describe the structure and function of the excretory system of vertebrates and the role of excretion in maintaining homeostasis
- describe the structure and function of the endocrine system of vertebrates
- describe the structure and function of the reproductive system of vertebrates
- describe vertebrate development, including the origins of different tissue types
- describe the structure and function of the nervous system, including sensory mechanisms
- describe the structure and function of the skeleto-muscular system
- apply concepts of vertebrate physiology to real situations
- demonstrate higher-order (critical) thinking skills in using the understanding gained by meeting the previous objectives
- apply information presented in Friday sessions to develop a plan for achieving success at Xavier and beyond

NSTA SCIENCE STANDARDS- Satisfies 1a, 1b, 3a, 3b, 5d

I reserve the right to make changes to this syllabus.