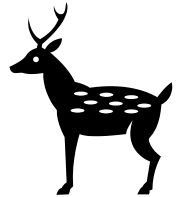




Biology 151 (Introduction to Biological Sciences II)

Department of Biological Sciences - Southern Illinois University Edwardsville



Syllabus – Fall 2011 – Sections 102-108

Professor: Dr. Peter Minchin

Office: SL 3313

E-mail: pminchi@siue.edu

Office Hours: Tue & Wed 2:00-3:00 (other times by appointment)

Lectures: Tue & Thu, 9:30-10:45 am, SL 1105

Textbook: *Biological Science* (4th edition) by Scott Freeman (Benjamin Cummings)

Phone: 650-2975 or 650-3927

Web: <http://www.siue.edu/~pminchi/>

Labs: Wed-Fri, SL 1216 (see page 7 for section times, TA contact data, etc.)

Lab Manual: *Biological Investigations* (9th edition) by Dolphin *et al.* (campus bookstore \$93.25; you will already have this if you have previously done Biology 150 at SIUE)

Photo Atlas: *A Photographic Atlas for the Biology Laboratory* (6th edition) by van de Graaff & Crawley (campus bookstore \$37.95; you may find it cheaper elsewhere but make sure you get the 6th edition)

Course Objectives

- To acquire a basic knowledge and understanding of:
 - the diversity of life, including bacteria, archaeans, protists, fungi, plants, animals, and viruses.
 - plant form, function, and reproduction.
 - animal form, function, and reproduction.
 - the basic principles of ecology.

Welcome to the Course!

I am a plant ecologist and my research focuses on the development of more effective methods for studying changes in ecological communities and the application of these methods in community conservation and restoration. In Biology 150, you learned about the molecular and cellular basis of life and basic concepts in genetics and evolution. Biology 151 is designed to introduce you to the amazing variety of life that is the result of more than three billion years of evolution on Earth. You will also learn the basics of structure and function in animals and plants and some major principles of ecology. It is my hope that the knowledge and understanding that you gain will be useful in your future studies, careers and everyday lives. As you are aware, the growing human population is placing increasing strain on the ability of the Earth's ecosystems to function and support life as we know it. A sustainable future will only be possible if we all have a basic understanding of the natural world and our dependence upon it. I want you all to do as well as you possibly can and I am always ready to provide advice and help to students who are making a genuine effort to succeed. Please feel free to come and talk with me during my office hours (see above), or contact me and make an appointment to meet at a mutually convenient time. I hope that you will find this course a valuable and enjoyable learning experience.

Attendance and Behavior

I expect you to attend all lectures and labs. Please note: if you miss more than one lab without a valid, documented excuse (see below) you may be dropped from the course. You are unlikely to succeed in the course unless you attend regularly. My experience has shown that the average grade of students who rarely come to class is 10-15% lower than the average grade of regular attendees. Although I will generally follow the order of material in selected chapters of the textbook (see schedule), additional information and examples will be presented in lectures and some sections will be discussed in less detail or skipped completely. Provided that you attend regularly, you will understand the material better and will always be sure which topics to learn and review for the exams.

The **SIUE Student Conduct Code will be enforced** in this course. You should behave in a courteous and respectful manner to your fellow students and to the instructors. Since all students are entitled to an environment that is conducive to learning, **you are expected to keep distractions to a minimum.** Please aim to be in class and ready to begin on time. If you do arrive late for any reason, come in as unobtrusively as possible. **All electronic devices, including phones, laptops, pagers, electronic games, radios, CD players and mp3 players MUST be turned off when you enter the classroom.** Disruption of class, whether by latecomers, noisy devices, or inconsiderate behavior (e.g., talking, texting, web surfing), will not be tolerated. **Repeat offenders may be dropped from the class.**

Assessment

Lecture Component

| | | | |
|---|--------|----------|-----------------|
| Exam 1 | 11.76% | 100 pts. | |
| Exam 2 | 11.76% | 100 pts. | |
| Exam 3 | 11.76% | 100 pts. | |
| Final Exam | 23.53% | 200 pts. | |
| Botanical Garden or Zoo Activity (choose one) | 2.94% | 25 pts. | 525 pts. |

Lab Component

| | | | |
|---|--------|----------|-----------------|
| 11 Lab Quizzes (10 pts. each, lowest dropped) | 11.76% | 100 pts. | |
| Lab Participation Score (5 pts. per lab) | 7.65% | 65 pts. | |
| Practical Exam 1 | 9.41% | 80 pts. | |
| Practical Exam 2 | 9.41% | 80 pts. | 325 pts. |

| | | | |
|--------------|---------------|--|-----------------|
| Total | 100.0% | | 850 pts. |
|--------------|---------------|--|-----------------|

There will be four lecture exams. Exams 1-3 will each consist of 50 multiple-choice questions worth 100 points (2 pts per question) and will cover only the material leading up to that exam. The Final Exam will have 100 multiple-choice questions and counts 200 points. There will be 50 questions covering the material since Exam 3 and 50 comprehensive questions, covering the entire course. A tentative list of the chapters to be included on each exam is shown in the schedule, but these may change as the semester progresses. All exams will take place in the usual lecture room. **Dates of the exams are as follows: Tuesday September 20, Tuesday October 18, Tuesday November 15 and Monday December 12.** Exams 1-3 start promptly at 9:30 AM and the Final Exam starts at 8:00 AM. You should add these exams to your planner or calendar right now. Any changes to the exam schedule will be notified in lectures and on Blackboard. **It is your responsibility to know the date and time of your exams and arrive on time.** No student will be allowed to start an exam after the first student has finished and left. You must bring photo ID (SIUE Student ID or State ID, such as driver's license), #2 pencils and eraser to all exams. Scantrons will be provided. **The SIUE Student Academic Code will be rigorously enforced. Cheating or academic misconduct of any kind will result in severe penalties and may be referred to the Office of the Provost.** Intellectual dishonesty cannot and will not be tolerated in a community of scholars.

MAKE-UP EXAMS WILL NOT USUALLY BE GIVEN. If you have a valid, university-approved reason for the missing Exam 1, 2, or 3, supported by documentation, your score on the missed exam will be your average score on the other two of these exams. If you miss more than one of Exams 1-3 or the Final Exam with an approved documented excuse, special arrangements will be made on a case by case basis. Acceptable reasons include the following: illness for which you consulted a doctor, serious family emergency, court-imposed legal obligations such as subpoenas or jury duty, military obligations and official religious holidays. If you know in advance that you will miss an exam, you must notify me BEFORE the exam and check that your reason is acceptable. Car problems, oversleeping, travel plans, death of your ex-room mate's third cousin's aunt, thinking the exam was on a different day, etc., do not count as valid excuses. **If you miss any exam without an acceptable, documented reason, you will score zero on that exam.**

Bonus points. Random pop quizzes, totaling 17 pts., will occur in lectures, without prior announcement. These are your only chance to make bonus points, so to take advantage of them you need to attend lectures regularly. **There will be no other opportunities to earn extra credit in this course.** You cannot make up bonus points, even if you have a valid reason for missing the lecture: you have to be there to earn the bonus points. Each bonus point will increase your overall percentage grade in the course by 0.118%, so if you earn all 17 bonus pts, your grade will be increased by 2.0 %. If you are close to the borderline, the bonus might boost you up to the next letter grade.

Missouri Botanical Garden or St. Louis Zoo Activity. You may choose either one of these two activities. The activity sheets will be available for download from Blackboard, where you will also find weblinks to maps and other information. Each sheet includes directions on how to get to the Missouri Botanical Garden or the St. Louis Zoo and a series of questions to be answered during your visit. You can visit the zoo or the gardens any time during the semester. At the Botanical Garden, obtain and keep your admission receipt (\$8 or \$4 for St. Louis residents); at the Zoo, ride the Emerson Zooline Railroad during your visit and keep the ticket receipt (\$5) or obtain a dated receipt from another zoo activity. The completed activity sheet, with your original, dated receipt (**NOT a photocopy**) confirming your visit stapled to it, must be handed in to your lab TA no later than Practical Exam 2. This activity is worth 25 pts or 2.94% of your overall grade. **You must attach the original, dated receipt in order to get these points – no exceptions.**

Lab Participation Score. Before leaving the lab each week, you need to show the TA your manual, where you should have completed all the activities assigned for that lab. This includes answering questions, doing drawings, labeling diagrams, filling in tables, etc. If the TA is satisfied that you completed the lab, you will receive 5 participation pts. If you are absent from lab or leave early before completing the lab, you will miss these points. **If you have an approved, documented reason for your absence, let your TA know as soon as possible and arrange to provide documentation (e.g., doctor's note). Travel plans are not an acceptable reason to miss lab or swap sections. If possible, you should attempt to attend an alternate section that week. Contact the TA of the other section (see page 7) and get permission to attend.** With 13 labs, there is a total of 65 possible participation points (making up 7.65% of your overall grade in the course). **If you miss more than one lab without a valid, documented excuse you may be dropped from the course.**

Lab Quizzes. There will be a fill-in-the-blank quiz at the start of eleven of the labs (see schedule). Each quiz will count 10 pts and will cover material from the previous lab, plus 1 pt on the current lab. You must arrive on time in order to take the quiz. Your lowest quiz grade will be dropped and a total out of 100 computed from your ten best quiz grades, making up 11.76% of your overall grade. Lab quizzes cannot be made up, but if you have an approved, documented absence, your overall score will be adjusted accordingly so that you are not disadvantaged.

Practical Exams. Practical Exam 1 will be in lab on October 12-14 and Practical Exam 2 will be in lab on December 7-9 (depending on your section). Each exam is worth 80 points (9.41% of your overall grade) and the 40 fill-in-the-blank questions will be based on slides, specimens or other materials that you observed in the labs. Practical Exam 1 covers the first 7 labs (diversity) and Practical Exam 2 covers the final 6 labs (plant and animal form and function). In order to do well on these exams, you need to spend time in each lab carefully examining the material, doing labeled drawings and ensuring that you fully understand everything. If you rush through the lab in an effort to leave early, you will probably perform poorly on the practical exams. **Correct spelling of scientific names and technical terms is expected.**

Grades

All exam scores will be included in calculating your final grade - no exams will be "dropped". Your total score out of 850 points (plus any bonus points) will be used to determine your grade, as shown in the following table. Scores on individual lecture exams will only be adjusted if item analysis shows that

specific questions were problematic for a majority of students. This rarely occurs. **Overall percentage scores will NOT be adjusted ("curved")**, so you will always be able to calculate exactly how many points you need to achieve your desired grade. **Please note that I do not give you a grade - you earn your grade based on your performance in the course.**

| Grade | Percentage Range | Points Range (out of 850) |
|-------|------------------|---------------------------|
| A | 89.5 - 100.0% | 760.75 - 850 |
| B | 79.5 - 89.4% | 675.75 – 760.74 |
| C | 69.5 - 79.4% | 590.75 – 675.74 |
| D | 59.5 - 69.4% | 505.75 – 590.74 |
| F | less than 59.5 % | less than 505.75 |

Internet Resources

E-mail. The quickest way to contact me and get answers to relatively straightforward questions is by e-mail (pminchi@siue.edu). I may sometimes use e-mail to contact you or send out important course announcements. I will use only your SIUE e-mail address, so **it is essential that you check your SIUE email every day** during the semester, otherwise you may miss an important e-mail.

Blackboard. This syllabus, announcements, lecture slide text, grades, links to the textbook web site and other useful links will be available through Blackboard, which you can access from the SIUE home page. If you have not used Blackboard before, you should become familiar with it as soon as possible.

Students with Disabilities

If you have a disability that may have some impact on your work in this class and for which you may require special accommodations, please see me as soon as possible so that we can make the appropriate arrangements. Your disability must be documented with Disability Support Services and I will need to see your ID CARD from DSS. Any student in this course with a disability that requires assistance during emergency room or building evacuations will be accommodated, and provided with a written evacuation plan. Such students must identify themselves to me and contact the safety officer, Dr. Tom Fowler (tfowler@siue.edu, 650-5231, SL 3331b) for an appointment as soon as possible in the semester.

Athletes, Musicians, etc.

If you have official university commitments that may clash with the exams in this course, please let me know immediately. I will need to receive an official notice or letter from your coach, conductor, etc.

Withdrawal Deadlines

Up until Friday, Sep 2 you may drop the class without receiving a grade. You may withdraw from the class without my permission through Friday, Oct 28, but you will receive a W grade on your transcript. After Oct 28 and up until Friday, Nov 18 you will need permission from both your advisor and me before you can drop and you will receive a WP or WF grade. No classes may be dropped after Nov 18.

Strategy for Success

Here are some recommendations that should help you to attain your learning goals in this course.

- 1. Read the assigned sections of the textbook before you come to each lecture.** Chapters and pages are listed in the schedule. Read through the text carefully, taking note of any unfamiliar terms. Also look carefully at the pictures and diagrams, read their captions and try to understand

them. Make a note of anything you find particularly difficult or unclear, so you can be on the lookout for that topic in the lecture. There is a summary of key concepts and a set of questions at the end of each chapter. A glossary of terms is located near the end of the textbook (pages with green edges).

- 2. Attend all lectures and make good, complete lecture notes.** To get the most out of a lecture, you should concentrate on the presentation as much as possible. The text on my slides will be posted on Blackboard, so you don't need to copy down every single word. I will attempt to post the text in advance but this may not always be possible. Note taking is a skill that takes a while to develop. Most students devise abbreviations for common words or phrases, so that they spend less time writing and more time listening to the instructor, looking at the pictures, diagrams and animations and thinking about the material. You should not hesitate to raise your hand in lectures if you have a question about anything that is not clear. **Please note that downloading the text from my slides is NOT a substitute for attending lectures. In order to fully understand the material and perform well on the exams, it is essential that you attend all lectures and make your own comprehensive notes.**
- 3. Review your notes regularly.** As a general rule, you should spend at least two hours studying for each hour that you spend in lectures (i.e., 6 hours per week). I suggest that you review your notes each day, while the lecture is still fresh in your memory. With the help of your textbook and other resources (e.g., the textbook web site, links on Blackboard), edit your lecture notes, correcting any errors and adding anything that you missed. You should look again at the diagrams and pictures in the textbook that were discussed in lectures. For many students, an effective way to learn is to make a sketch of the diagram in your notes and later test yourself by labeling the features in the drawing and making notes on their functions and interrelationships. The questions and summaries at the end of each textbook chapter will also help you to test and consolidate your knowledge. Make sure that you understand concepts and ideas, rather than simply trying to memorize definitions and terms. It is far more effective to review the material in smaller portions than attempt to cram all the material immediately before an exam. **Note that you should ask me, not your lab TA, any questions you have about the lecture material.**
- 4. Prepare for each lab** by reading the relevant chapter(s) of the lab manual and reviewing the corresponding material in the photo atlas before you come to lab. Don't forget to prepare for the lab quiz, if there is one (see schedule), by reviewing the previous lab, including your notes and drawings and being aware of what is coming up in that day's lab.
- 5. Attend all labs and use the time in lab to observe and understand all the material.** Bring your lab manual and photo atlas to every lab. Examine all the microscope slides and other specimens carefully and do accurate, labeled drawings in your manual. These will be a great resource when studying for the practical exams. Good photos of many of the slides we observe in the lab are also available in the photo atlas. If something is confusing, first try to resolve the problem yourself, by using the manual and photo atlas or asking your neighbors. If you are still stuck, ask the lab instructor for help. It is essential that you know how to operate the microscopes in order to obtain a clear, focused image. If you are having trouble observing a slide, review the information in Lab Topic 2 (page 9 of the lab manual) and ask the TA for help if you still can't adjust the microscope successfully. Take your time: if you rush through the lab and try to leave early every week, you will not only earn a low participation score but your understanding of the material will be poor and you will not do well on the Practical Exams.
- 6. Review the lab material each week.** This is a much better idea than last-minute studying for lab quizzes or trying to review all six labs just before each Practical Exam. You should aim to spend at least two hours a week reviewing the lab. Make a note of anything that is confusing or incomplete in your lab manual and ask me or the lab TA about it as soon as possible.

Lecture and Exam Schedule

(Note: this is a useful guide, but the details may change as the semester progresses)

| Date | Lecture Number | Topic | Assigned Reading | |
|--|----------------|---|------------------|-----------|
| | | | Chapter | Pages |
| Tue, Aug 23 | 1 | Introduction; Bacteria and Archaea | 28 | 496-518 |
| Thu, Aug 25 | 2 | Protists | 29 | 519-545 |
| Tue, Aug 30 | 3 | Green Algae and Land Plants | 30 | 546-578 |
| Thu, Sep 1 | 4 | Fungi | 31 | 579-600 |
| Tue, Sep 6 | 5 | An Introduction to Animals | 32 | 601-622 |
| Thu, Sep 8 | 6 | Protostome Animals | 33 | 623-645 |
| Tue, Sep 13 | 7 | Deuterostome Animals | 34 | 646-674 |
| Thu, Sep 15 | 8 | Viruses | 35 | 675-694 |
| Tue, Sep 20, 9:30-10:45 am EXAM 1 (100 pts), covers chapters 28-35. | | | | |
| Thu, Sep 22 | 9 | Plant Form and Function | 36 | 695-716 |
| Tue, Sep 27 | 10 | Water and Sugar Transport in Plants | 37 | 717-736 |
| Thu, Sep 29 | 11 | Plant Nutrition | 38 | 737-754 |
| Tue, Oct 4 | 12 | Plant Sensory Systems, Signals and Responses | 39 | 755-782 |
| Thu, Oct 6 | 13 | Plant Reproduction | 40 | 783-802 |
| Tue, Oct 11 | 14 | Animal Form and Function | 41 | 803-821 |
| Thu, Oct 13 | 15 | Water and Electrolyte Balance in Animals | 42 | 822-840 |
| Tue, Oct 18, 9:30-10:45 am EXAM 2 (100 pts), covers chapters 36-42. | | | | |
| Thu, Oct 20 | 16 | Animal Nutrition | 43 | 841-860 |
| Tue, Oct 25 | 17 | Gas Exchange and Circulation | 44 | 861-884 |
| Thu, Oct 27 | 18 | Electrical Signals in Animals | 45 | 885-906 |
| Tue, Nov 1 | 19 | Animal Sensory Systems and Movement | 46 | 907-928 |
| Thu, Nov 3 | 20 | Chemical Signals in Animals | 47 | 929-949 |
| Tue, Nov 8 | 21 | Animal Reproduction | 48 | 950-972 |
| Thu, Nov 10 | 22 | The Immune System in Animals | 49 | 973-992 |
| Tue, Nov 15, 9:30-10:45 am EXAM 3 (100 pts), covers chapters 43-49. | | | | |
| Thu, Nov 17 | 23 | An Introduction to Ecology | 50 | 993-1018 |
| Nov 21-25 | | No lectures – Thanksgiving Break | | |
| Tue, Nov 29 | 24 | Population Ecology | 52 | 1037-1057 |
| Thu, Dec 1 | 25 | Community Ecology | 53 | 1058-1082 |
| Tue, Dec 6 | 26 | Ecosystems | 54 | 1083-1104 |
| Thu, Dec 8 | 27 | Ecosystems (continued) | | |
| Monday, Dec 12 8:00-9:40 am | | FINAL EXAM (200 pts total) Section A (100 pts) covers chapters 50, 52, 53, & 54. Section B (100 pts) is comprehensive, covering the entire course. | | |

Laboratory Section Information

Note: Ms. Christine Simmons is Instructor of Record for sections 001-008.

| Section | Day | Time | TA | Email | Phone |
|---------|-----------|-------------|--------------------|------------------|--------------|
| 001 | Thursday | 10:00-11:50 | Roxane Krutsinger | rkrutsi@siue.edu | 217-741-3358 |
| 002 | Thursday | 2:00-3:50 | Sabrina Ashbaker | sashbak@siue.edu | 217-371-2380 |
| 003 | Thursday | 4:00-5:50 | Sabrina Ashbaker | sashbak@siue.edu | 217-371-2380 |
| 006 | Friday | 12:00-1:50 | Brian Stoff | bstoff@siue.edu | 618-978-7416 |
| 007 | Friday | 2:00-3:50 | Brian Stoff | bstoff@siue.edu | 618-978-7416 |
| 008 | Friday | 4:00-5:50 | Andrew Bulla | abulla@siue.edu | 217-549-4886 |
| 102 | Wednesday | 10:00-11:50 | Sabrina Ashbaker | sashbak@siue.edu | 217-371-2380 |
| 103 | Wednesday | 12:00-1:50 | Brian Stoff | bstoff@siue.edu | 618-978-7416 |
| 104 | Wednesday | 2:00-3:50 | Lindsay Longfellow | llongfe@siue.edu | 309-303-7207 |
| 105 | Wednesday | 4:00-5:50 | Lindsay Longfellow | llongfe@siue.edu | 309-303-7207 |
| 107 | Friday | 8:00-9:50 | Roxane Krutsinger | rkrutsi@siue.edu | 217-741-3358 |
| 108 | Thursday | 12:00-1:50 | Roxane Krutsinger | rkrutsi@siue.edu | 217-741-3358 |

Note: mailboxes for all TAs are located in SL 3312

Laboratory Schedule

Bring lab manual and photo atlas to all labs.

| Dates | Lab(s) | Lab Topic | Lab Quiz | Lab Manual Pages | Photo Atlas Chapter |
|------------------|-----------------------|--|----------|--------------------------------|---------------------|
| Aug 24-26 | 15 | Lab Safety; Investigating Bacterial Diversity | | 171-182 | 3 |
| Aug 31-Sep 2 | 16 | Evolution of Eukarya & Diverse Protists | 1 | 183-198 | 4 |
| Sep 7-9 | 17 | Ancestral and Derived Characteristics of Seedless Plants | 2 | 199-212 | 6 |
| Sep 14-16 | 18 | Derived Characteristics of Seed Plants | 3 | 213-228 | 6 |
| Sep 21-23 | 19 | Investigating Fungal Diversity and Symbiotic Relationships | 4 | 229-246 | 5 |
| Sep 28-30 | 20 & 21 | From Basal to Bilateral Animals; Lophotrochozoa: Increased Complexity | 5 | 247-264 & 265-282 | 7 |
| Oct 5-7 | 22 & 23 | Ecdysozoa: Simple and Complex; Deuterostomes and the Origins of Vertebrates | 6 | 283-300 & 301-316 | 7 |
| Oct 12-14 | | Practical Exam 1 | | | |
| Oct 19-21 | 24 | Investigating Plant Cells and Tissues | | 317-330 | 6 |
| Oct 26-28 | 25 | Investigating Functional Anatomy of Vascular Plants | 7 | 331-350 | 6 |
| Nov 2-4 | 26 | Investigating Pollination, Development and Dispersal | 8 | 351-360 | 6 |
| Nov 9-11 | 47 & K6* & 48 (part) | Vertebrate Anatomy: External Features and Skeletal System of Rat; Muscular Systems and External Anatomy; Muscles of the Rat. | 9 | 523-529 & following* & 531-534 | 8 |
| Nov 16-18 | 48 (part) & 49 (part) | Vertebrate Anatomy: Internal Organs of Rat. Urogenital System of Rat. | 10 | 534-538 & 539-543 | 8 |
| Nov 21-23 | | No Labs This Week (Thanksgiving Break) | | | |
| Nov 30-Dec 2 | 49 (part) & K10* | Vertebrate Anatomy: Circulatory System of Rat; Nervous Systems | 11 | 543-550 & following* | 8 |
| Dec 7-9 | | Practical Exam 2 | | | |

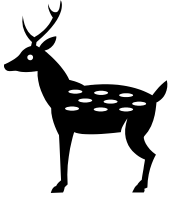
* these sections from a different manual (Kardong) are inserted after labs 47 and 49, respectively

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Biology 151 (Introduction to Biological Sciences II)

Department of Biological Sciences - Southern Illinois University Edwardsville



Course Signup Sheet – Fall 2011 Sections 102-108

Once you have read the syllabus, please fill out and sign this sheet using your usual signature, detach it from the syllabus and hand it to me at the front of the lecture room before you leave. Thanks!

I have read the syllabus for Biology 151 (Introduction to Biological Sciences II) in fall 2011. I understand, accept and agree to abide by all the course policies, as detailed in the syllabus.

Signed _____ Date _____

Name (please print clearly) _____