BIOLOGY 105 Introductory Biology Lab I Spring 2012

Dr. Steven Spilatro
Meeting Time: Wednesday 2:00 - 5:00, in Bartlett 265
Texts: *Introductory Biology Lab I Manual*

SCHEDULE OF LABORATORY EXERCISES

✸✸✸ Read assigned chapters in the lab manual prior to class meeting ✸✸✸

Lab Day	**Lab activities** ★★★**Note:** Quizzes are typically around 15 points★★★	
January 18	**General Introduction** ➢The Great Walnut Chase ➢Discuss of Scientific Methodology	**Assignments due at beginning of lab period**
January 25	**Open-Space Behavior lab exercise** ➢**Quiz 1**- on Sci Mthdgy post lab & Open-Space pre lab **&** C**omplete** questions on page sm5	►**Read** this lab exercise pages osb-4 & **Complete pre-lab questions** on page osb11 ►**Read** Scientific methodology pages sm1-3
February 1	**Learning how to graph using Excel** **Got a laptop?** Bring it to lab today! ➢**Quiz 2** – on Open-Space post-lab ➢Discuss lab report Procedures section & preparation of graphs and tables	►**Complete post-lab questions** on page osb6 ►**Read** Lab Report Guidelines pp lrg1& 4-5 **& Complete exercise** on page lrg7
February 8	Microscopy & Microorganisms lab exercise ➢**Complete** in-lab pages mmd5 – 10	►**Read** this lab exercise pages mmd1-4 ►**Turn in Open-Space lab report** (25 pts) Procedures section – submit to TII.com ►**Turn in Open-space graphs** (10 pts)
February 15	Leaves & Pigments lab exercise ➢**Quiz 3** – on Microscopy in-lab notes ➢Discuss lab report Results, Discussion & Literature Cited sections	►**Read** this lab exercise pages lp1-2 ►**Read** Lab Report Guidelines pages lrg9-12 **& peruse** pages lrg13-16 ►**Turn in Cit/Ref exercise** (10 pts)
February 22	Plant Diversity lab exercise ➢**Quiz 4 –** on Leaf & Pigments, & Lit Cit'n ➢Complete pages pd9-13	►**Read** this lab exercise pages pd1 **& peruse** pages pd2-8
February 29	BioFuel Production lab exercise – I ➢**Quiz 5** – on Plant Diversity in-lab notes & Biofuel prelab ➢Discuss fermentation principles ➢Discuss lab report Introduction, Results, Discussion & Literature Cited sections – submit to TII.com	►**Read** this lab exercise pages bp1-5 ►**Complete pre-lab questions** on bp7 ►**Turn in leaf pigments lab report** (50 pts) Results, Discuss. & Lit. cited sections Submit to TII.com **Note:** the Biofuel Lab Web Resource Page contains much additional information about fermentation and variables that

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March 7	BioFuel Production – II **Got a laptop**? Bring it to lab today! ➢Groups develop experimental plan and using Excel to generate trendlines ➢Groups complete experimental plan on pages bp21-22	►**Read** this lab exercise page bp9 ►**Complete pre-lab questions** on page bp
March 14	**Break**	
March 21	BioFuel Production – III ➢Groups perform their experiments	►**Turn in 1st Biofuel lab report** (25 pts) Introduction & literature cited sections Submit to TII.com
March 28	BioFuel Production – IV ➢Groups discuss and interpret results ➢Discuss lab report expectations ➢Q**uiz 6** – on Biofuel prelabs I & II	►**Read** this lab exercise pages bp13-15 ►**Turn in Biofuel graphs** (10 pts)
April 4	Onion root tip mitosis lab exercise ➢Complete pages rtm5-6	►**Read** this lab exercise pages rtm1-2
April 11	Vertebrate Diversity lab exercise ➢Complete pages vd9-14	►**Read** this lab exercise pages vd1-2 **& peruse** pages vd3-8 ►**Turn in 2nd Biofuel lab report** (75 pts) Procedures, Results, Discussion & Lit Cited sections – submit to TII.com
April 18	Field Trip ➢**Quiz 7** – on Vertebrate Diversity in-lab notes	
April 25	Flowering Plants lab exercise ➢**Complete & turn in** pages ff7-13 (15 pts)	►**Read** this lab exercise page ff1 **& peruse** pages ff2-6

GRADING POLICY

Lab Reports (3)	175 Points
Other grades	~140 Points
Total =	~315 Points

Your final grade will be determined as follows:

A+	97%	B+	87%	C+	77%	D+	67%	F	< 60%
A	93%	B	83%	C	73%	D	63%		
A-	90%	B-	80%	C-	70%	D-	60%		

EXTRA CREDIT

Attend an approved presentation of a biological nature, such as the presentations of the Marietta Natural History Society (second Thursday of the month), and type a 1 page essay that summarizes the information presented *and* concludes with your reaction to the presentation. Submit your essay to TurnItIn.com **within one week of the presentation**, for up to 5 points. There is a maximum of 15 extra credit points for the course.

Note that your extra credit essay can be handed in to only <u>one</u> course for credit!

ASSIGNMENTS: Written assignments, including lab reports, must be turned in as a paper copy (digital copies are not acceptable) at the beginning of the lab period (2:00 PM). Late assignments will be penalized 10% per day, and failure to turn in an assignment may result in a failing grade for the semester. I reserve the right to reject (assign a '0') any paper that I feel egregiously fails to meet the guidelines. Lab reports must be submitted to TurnItIn.com before being turned in to the instructor. Double-check to make sure your file is listed as submitted and that you receive a digital receipt of the submission.

Turnitin.com Information: **<u>Class ID:</u>** Biol105-03 **<u>Password:</u>** 4682270

Late submission to TurnItIn.com will cause a penalty of 5% per day. For example; if a lab report is handed in 2 days late (-20%) and then submitted to turnitin.com after another 2 days (-10%), a total penalty of -30% will result.

All work produced in this course is considered "public" and is used for the purposes of teaching and evaluation. This likely includes the use of your work as a model for future students/courses and the submission of your work to an online plagiarism detection service.

<u>IMPORTANT</u>: <u>SAVE YOUR WORK REPEATEDLY during your work sessions and also in several different places</u>—not just on one disk or one jump drive!! Also, <u>at the end of each work session, print out a paper copy</u>, so that you can just retype it if all your electronic copies fail!!

ATTENDANCE POLICY

Attendance is **mandatory**. Since this course meets only once weekly, <u>each unexcused absence will result in a 5% deduction from the final semester grade.</u> You must *personally* notify me AT LEAST ONE WEEK in advance if you expect to miss a lab due to a field trip, athletic activity, etc. ***If* your event qualifies as an approved absence, you will still be required to attend a different lab section for that week**. The other lab sections are Tuesday from 1:00 – 4:00 PM and Thursday from 1:00 – 4:00 PM in the same room.

Acceptable reasons for missing a lab include the following situations:

1. <u>Illness</u>. If you are seriously ill, CALL ME ON THE PHONE BEFORE LAB. If I'm not available, leave a message on my voice mail (4748) or e-mail (spilatrs@marietta.edu). It is YOUR RESPONSIBILITY to notify me unless you are deathly ill, hospitalized, or otherwise seriously incapacitated. The seriousness of the illness must be confirmed by the health center.
2. <u>Death in the immediate family</u>. As above, I should be notified before class if you must leave town in such a situation.
3. <u>Extraordinary circumstances</u> not covered in 1 & 2 will be dealt with on an individual basis. You must notify me *as soon as the circumstances permit*.

ASSORTED KEYS TO SUCCESS IN BIOLOGY 105

1) **<u>Come to class prepared</u>: Read the lab exercise fully and highlight or underline the key points; before you come to lab, you should understand:**
   --the background and objectives,
   --what you will do, and
   --how you will be doing it.
2) Ask lots of questions. If you have a question, most likely many other students in the class are wondering about the very same thing.
3) Study with a classmate; quiz yourself and each other. "Self-examination" is one of the most effective learning skills.
4) Seek assistance at the Writing Center when writing lab reports.

ACADEMIC DISHONESTY: Unless specifically indicated otherwise, written assignments are expected to be the exclusive work of individual students. "Academic dishonesty is any treatment or representation of work as if one were fully responsible for it, when it is in fact the work of another person" and "includes cheating, plagiarism, theft, or improper manipulation of laboratory or research data or theft of services" (*Marietta College Undergraduate Programs, 2011-2012 Catalog*, p. 128). Plagiarism includes:

--copying part or all of someone else's paper;
--copying words from a print or electronic source without putting quotation marks around them followed by a citation of the source; direct quotes must have *both* citation *and* quotation marks; [in Biology 105, you must *paraphrase* information; never directly copy or quote sentences from sources];
--paraphrasing information without following it with a citation of the source; or
--allowing someone else to write part or all of your paper.

"A substantiated case of academic dishonesty may result in disciplinary action, including a failing grade on the project, a failing grade in the course, or expulsion from the College" (*Marietta College Undergraduate Programs, 2011-2012 Catalog*, p. 128).

ACADEMIC ALERT AND INTERVENTION PROGRAM

In the fall 2003 semester, an academic alert program was implemented and involves faculty indicating in the first two weeks any student who is not attending class or is showing early signs of academic failure to the early alert team. The goal is to identify students who are having trouble and to provide them with the necessary support and referral.

Because academic success is directly linked to establishing a pattern of attendance early in your academic career, **attendance is required in this class**. Several assignments are due early in the semester to provide early evidence of any difficulty you may be likely to have in your academic career.

CAMPUS EMAIL: I will be communication to the class on a regular basis through campus e-mail addresses, and you are expected to check your campus email address on a daily basis.

WHERE DO YOU GO FOR HELP?

You are asked to make many adjustments in your transition to life at college, and the adjustment to the educational and social environment of college can be very stressful. You may at some time during this lab, or in other courses, feel overwhelmed or distraught. It is of great importance that you learn to recognize and use the support system that is available at Marietta College. Foremost is remembering that you are not alone in your anxiety; many of your classmates also are feeling the same way. I believe that you will find all of the following resources helpful.

1. **Your professor** for Biology 105. I am always willing to devote time to helping students having difficulties with the course material. Come in and see me in my office**, ROOM 2--, RICKEY SCIENCE CENTER, ext 4743, e-mail: spilatrs**. Although I schedule "official" office hours (**Monday 1:00-2:00 PM and Thursday 8:00-9:00 AM**), in general I maintain an **"open door" policy**, so feel free to see me after lab or just drop by my office; I can almost always spare some time, but if not, we will find a time when we can meet.

2. **Help sessions**. If requested I will offer help sessions during the semester. These are excellent opportunities to obtain a new explanation, or just to review material covered previously during the semester.

3. **Your advisor**. Advisors are provided to assist you and are excellent resources for solving all sorts of problems.

4. The **Student Counseling Center** is in Andrews Hall, Room 102 (ext. 4477). The college counselors have great experience in helping students that are feeling overwhelmed with their course load or other activities. The Counselors have hours posted for Monday through Friday. You can also get help after hours by contacting a Resident Assistant or Resident Director; all RAs and RDs have various phone numbers that you can call, such as a 24-hour community crisis line (373-8240), etc.

5. **The Campus Writing Center** is located in 221 Thomas Hall (ext. 4658). The Center is open to all students who desire to improve their writing confidence and solve writing difficulties. Any writer seeking help with the conception, research, drafting, or revising stages is welcome. On some occasions a professor may request that you seek help here. http://www.marietta.edu/~mcwrite

6. **The Academic Resource Center** is located in Andrews Hall, room 306 (ext. 4700). ARC offers services to help students achieve their academic potential. These services include **study skills assistance** and **tutoring** services as well as individualized support. http://www.marietta.edu/~arc

SKILLS OBJECTIVES

We believe that "understanding" science is essential to a person's ability to succeed in today's society. By "understanding" we mean more than just possessing knowledge about the physical and natural world. "Understanding" also implies comprehending how science is practiced, and how scientists employ certain intellectual skills in their pursuit of knowledge. Below are listed some of the skills that we feel you will need to truly understand science, and that we will be endeavoring to teach to you during this laboratory.

1. To learn how scientists think about things. The practice of science requires curiosity, intellectual honesty, skepticism, tolerance of ambiguity, and openness to new ideas.

2. To learn application of the scientific method as a tool through which observations can yield a meaningful understanding of nature, and as a tool by which problems in various spheres of human activity can be solved.

Of particular importance will be learning how to develop a testable hypothesis, make predictions based upon sound experimental technique, and draw valid conclusions from experimental results.

3. To understand the importance of critical observation, and reproducible measurements. During Biology 105 you will learn how to apply such observations to:

a. distinguishing characteristics of a biological organism or system; eg. an examination of the structure of an organism, such as a plant, or the behaviors of animals, can reveal a great deal about the biology of those organisms.

b. understanding hypotheses and experimental tests of those hypotheses; eg. the skill of observation will be put to use in many of your labs, including the “Great Walnut Chase” and “BioFuel Production through Yeast Fermentation” labs.

c. drawing comparisons between different biological systems or organisms. e.g. observations of various plants will lead to an understanding of what differences are being used to classify various organisms.

4. To integrate learning through experimentation and reading. Throughout this semester you will be called upon to build knowledge and understanding through readings, direct observation and experimentation.

5. To learn the importance of the precise vocabulary and expression in the conveyance of science information. Because scientists need to communicate information precisely and unambiguously, they often use 'technical' terms, or attach specialized meanings to everyday words. The goal of this course is not that you memorize the jargon used in technical scientific writing, but that you can understand scientific information communicated in textbooks, popular scientific magazines, and the media.

6. To develop written communication skills. Part of learning the "language" of science includes being able to communicate ideas in a concise and accurate written form. We have this objective specifically in mind when making writing assignments during the semester.

7. To understand how mathematics contributes to the understanding of the natural world. Mathematics is an essential component of scientific learning. Scientists use mathematics to manage and interpret data, to express formal relationships between ideas, and to devise mathematical models of natural systems.

8. To appreciate the role of computers in the process of science. In this course, you will apply computers to the acquisition, analysis and presentation of scientific information.