2015

Biology 142 Principles of Bioloogy II Spring 2015

Bryan Krall
Parkland College, bkrall@parkland.edu

Biology 142
Principles of Biology II
(Spring 2015)
4 lecture hours and 3 lab hours per week

Required Material:
- Raven, et al. 2013. *Biology* 10th edition. McGraw Hill.
- Ambrose & Ambrose. *A Handbook of Biological Investigation*.

Recommended Material:
- Access code for MHHE Connect
  - Site address TBA.

Instructor
Bryan Krall
L230
353-2042
bkrall@parkland.edu
Office hours: TBA

Modules

Module	Topic	Lecture Dates
Unit I	**Ecology & Evolution**	
1	Evolution	Jan 12-23
2	Speciation	Jan 26-30
3	Nature vs. Nurture	Feb 2-6
4	Ecology	Feb 9-13
5	The Human Impact on Ecosystems	Feb 16-20
Unit II	**Diversity of Life**	
6	Viruses, Bacteria, Protists, & Fungi	Feb 23-27
7	Plants	March 2-13
8	Animal Diversity & Development	March 16-20
Unit III	**Animal Physiology (Human Emphasis)**	
9	Internal Communication	March 30-April 10
10	Sense & Response	Apr 13-17
11	Energy Intake & Utilization	Apr 20-24
12	Internal Defense	Apr 27-May 1
13	Homeostasis of Ions	May 4-7

Lab Descriptions*

Natural Selection and Genetic Drift
Students use dark and light colored beans (representing alleles in a population) as a model to track allele frequency changes in a simulated population over time.

Biological Literature
Students work through a series of activities in the library involving topics such as Boolean operators, plagiarism identification, identification of reliable primary literature, and discussion of the best databases for biology majors to use.

Nest Depredation
Students design their own experiment testing a hypothesis related to nesting behavior among birds (i.e., nest placement strategies). This lab involves students making eggs from clay and placing them outside for a couple of weeks. After this time, students look for bite or scratch markings representing a predator having raided the nest.

Ecological Competition
Students will design their own experiment using bean plants grown at various plant densities. Competition will be observed by comparing the dry masses of bean plants grown at different plant densities.

Acid Deposition
Students design their own experiment testing the effects of different concentrations of sulfuric acid upon plant growth (or algae growth for some semesters). Students will record the final dry mass, height, coloration, and health of each of the different plant groups.

***Pilobolus* Phototropism**
Students design their own experiment testing which color of light *Pilobolus* sporangia will eject spores toward. Proper aseptic technique is critical to master in order for this lab to be a success. Students will count how many spores are found under each color using a dissecting microscope. Understanding the lifecycle of this fungus is needed in order to arrive at a sound hypothesis to test.

Biostatistics
Students receive a basic primer on the purpose and critical importance of statistical analysis in biology. Students are to calculate standard deviation. Students also learn proper application of the Chi-square (goodness of fit; independence), regression, correlation, and T-test.

Bacteria identification
Students are given five unknown bacteria and conduct a gram stain procedure to determine which are gram + and which are gram -. They use a dichotomous key and compound microscope to identify each bacteria using gram stain results and observations of colony characteristics.

Lab Practical #1

Flowering Plant Anatomy
Students work through a series of stations setup in the lab exhibiting various anatomical aspects of flowering plants including stems, roots, flowers, fruits, leaves, meristem tissue, vascular tissue, etc.. There is a significant amount of information in this lab. Including this lab in Lab Practical #1 is not a good idea. It seems to overburden students.

Animal Diversity
Students work through a series of stations setup in the lab exhibiting the major traits and body patterns in the animal kingdom. This includes segmentation, symmetry, cephalization, germ layers in animal embryos, etc. Emphasis on animal evolutionary history. There is a significant amount of information in this lab.

Sense and Respond
Students work through and observe many optical illusions and auditory illusions. Students determine which

areas of skin on their bodies are most sensitive to touch. Students map out which areas of their tongues taste bitter, salty, sour, and sweet.

Lab Practical #2

Start Independent Study Project
This project is actually a semester long project that culminates in the usage of two lab periods. By this point, students will have chosen a topic, researched the topic, written an Introduction for the project, written a highly detailed Materials & Methods for this topic, and have given thought as to how they will collect their data and which statistic to use to test for significance between data groups. This lab and the next, students will actually setup and implement their experiments.

Independent Study PowerPoint Presentations
Students present the results of their projects as if they were giving their presentation at a scientific convention.

** Unfortunately, many aspects of life do not fit neatly into one three hour lab period. Because of this, some of the data collection for some of the labs span multiple weeks. For example, the seeds for the competition lab may be planted the first week of class. The plants are then allowed to grow three or four weeks before the measurements are taken.*

Module Quizzes

- Module quizzes are taken in the Testing Center (L161).
- Use the computers provided there. If there is a problem with the computer while taking a quiz, please notify your instructor **immediately**. If your instructor is unavailable, contact the lab monitor.
- Translation dictionaries are not allowed.
- Be sure to bring a quarter with you to store your belongings in the locker or you will not be allowed to take a quiz.
- Be sure to bring your student I.D. or you will not be allowed to take the quiz.
- Testing Center hours are 9:00-3:45 (M-Th) & 9:00-2:45 (F).
- Any violation of testing center policies (as perceived by testing center staff and found online at: http://natsci.parkland.edu/testing_center/home.htm) may result in a zero grade for the assignment in question or expulsion from the course.

Attendance Policy

- On Census Day, your instructor is required to assess your attendance. If you have not attended regularly to that point, you may be withdrawn. You are ultimately responsible for your own withdrawal by the withdrawal date. Non-attendance after the Census Day may result in an F if you don't withdraw yourself. **However, the instructor still reserves the right to withdraw a student for poor attendance or grades on or before midterm.**
- Regular and prompt attendance is expected at all classes. **Quiz, exam, or practical deadlines will not be extended as a result of absence unless the instructor is contacted prior to class that day or by 12:00 pm the day of the quiz and the instructor deems your absence as excused.**
  - Excused absence – it is up to the instructor (not the student) to determine if an absence is excused. Notifying your instructor of your absence IN ADVANCE of the class period(s) you will be missing may be looked kindly upon by your instructor. Hint. Hint.
- You are held accountable for all announcements made at the beginning of class.
- It is YOUR responsibility, not your instructor's, to find out what assignments you may have missed while absent.
- **Lecture attendance/participation grade**
  - You receive 2 points for a non-tardy arrival to each hour of lecture. Arriving on time to a **two hour** lecture will earn you 4 points.
  - Attendance is taken at the start of class. If you are not present when the instructor accounts for your presence in class then you will be marked absent. It is your responsibility to ask the instructor to change the absence to a tardy **immediately after class that day** (no later) or the absence will not be changed to a tardy.
  - You receive only 1 point for coming to lecture tardy or if you have an excused absence.
  - Excused absence – it is up to the instructor (not the student) to determine if an absence is excused.

- Participation and positive attitude in class are strongly encouraged in addition to attendance. Your attendance grade may be adjusted to account for your attitude and participation. For example, you may have perfect attendance and a positive attitude but you rarely participate in class. You grade may be lowered because of a low participation rate.

- **Lab attendance/participation**
  - You are expected to attend all labs on time.
  - A late arrival to a lab will result in 10 points being deducted from the lab attendance/participation grade.
  - Due to the extensive lab setups for many of the laboratory activities, labs may not be made up even if you have a "good" excuse. If you miss a lab you may receive a zero for that lab.
  - If you know you will miss a coming lab, accommodations MAY be made for you to attend another lab section.
  - The last 30 minutes of lab time is a time for students to complete their lecture quizzes.

Independent Study Project

- The careful monitoring of your independent study project by YOU (NOT your instructor) is a requirement to pass the I.S. project.
- **Each successive I.S. project assignment builds upon the previous assignments. It is because of this that you may be given a zero for successive assignments if any previous assignment(s) are not completed to the satisfaction of the instructor.**
- Contact your instructor IMMEDIATELY if you encounter problems. Don't wait for things to get worse.
- Failure of a student to exhibit proper initiative in conducting the project or contacting the instructor of problems can result in a failing or reduced grade for any or all grades associated with the I.S. project.
- Internet resources are not allowed to be used as reputable resources for any assignment involving the Independent Study Project. It may be necessary for you to obtain journal articles at 101 Burrill Hall (407 S. Goodwin). This is the Biology Library on the U of I campus.
- **All projects are to be worked on during scheduled lab time in the lab.**
- The I.S. Tilt grade takes into account:
  1) satisfactory completion of the project.
  2) amount of time spent on the project.
  3) how well you worked with others (partners, instructor, lab monitor, etc.).
  4) how much initiative (degree to which you were a self-starter) you exhibited throughout all the assignments related to the I.S. Project.
  5) how well you kept your instructor informed of your progress (on a twice a week basis).
  6) assignments being completed on or before the due dates.

Electronic Submissions

- All writing assignments are to be submitted electronically in the appropriate dropbox in .rtf or .doc file formats.

Extra Credit

- There may be an opportunity for extra credit during the term. This could involve a work related project for an environmental cause, attending special lectures, and programs related to course content.
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- All extra credit must be completed by the "Last Day to Withdraw" from a course date posted in the Parkland College Class Schedule.
- If you sign up for an extra credit assignment and it is unexpectedly canceled (no matter the reason), then you will not receive extra credit points for it and your instructor will not create another extra credit assignment to replace the one that was canceled. Simply put, you lose out on that extra credit opportunity.
- **A student may not exceed 60 points extra credit during the semester for the course.**
- **Saturday morning workdays + Reflective paper (30 pts.)** at Purves Nature Center, Urbana Park District; 1505 N. Broadway, Urbana. One need not be an expert in the out of doors. The Nature Center staff will conduct a thorough orientation for your morning's work at the Center. Contact the Volunteer Coordinator, for further information at 384-4062.

- **Busey Woods** work days are the 2nd Saturdays of each month, 9 to 11 a.m. (meet at the Nature Center).
- **Meadowbrook Park** also has workdays on the 4th Saturday of each month, 9-11 a.m. (meet at the parking lot off S. Race St., Urbana). It is common courtesy to call at least a couple days ahead to let them know you will be coming to help.
- **Weaver Park** also has workdays on the 2nd Saturday of each month, 1-3 p.m. (runs along Kinch Street on the east side of Urbana).
- Bring back a note with the volunteer coordinator's signature and time you worked to receive your extra credit.
- The **reflective paper** must be about how you felt about your volunteerism and service to the community. Please allow for a ½ to ¾ page to discuss this.

- **World of Science Lecture Series** (15 pts.). Held at the Staerkel Planetarium on the first Friday of each month at 7:00 p.m. ($1.00 admission charge). Write up a 250 word essay on what you found interesting at the lecture.
- You are responsible for your own transportation to the extra credit activities.

Late Policy

- Anything submitted past the due date will receive a –25% penalty for each school day it has not been turned in.

Behavior

- Please be respectful of others in your class and do not be disruptive. Behavior that is deemed disruptive by the instructor will not be tolerated and disciplinary action may be used.
- **Place your cell phone in silent mode** your cell phones before class and lab. These are disruptive to the instructor and to other students.
- Students may not employ the usage of <u>any</u> electronic device in class or lab without the consent of their instructor. These are disruptive to the instructor and to other students. Up to 10 points (per incident) may be deducted from the grade of any student who allows their electronic device to create an audible sound (vibration excluded) during class or lab.

General Education Objectives for This Course

The College catalog states "…all of Parkland's academic offerings will help [students] grow by improving their individual skills and competencies and by providing experiences in areas they have not yet explored" (p.9, 2011-12). You are encouraged to review the Course Information Form (CIF) for your course. There, you will find the general education objectives addressed in your course. You are additionally encouraged to list those particular objectives in your syllabus. This will aid our students in appreciating that not only are they learning content specific information, but that Parkland is assisting them in realizing "their potential as learners, workers, and valuable participants in a global society" (p.8, 2011-12).

- Write effectively.
- Think critically in decision-making and problem-solving, using scientific inquiry.
- Compute, assess, and articulate in quantitative terms.
- Use technology to access, retrieve, process, and communicate information.
- Understand global political, social, economic, historical issues and philosophical ideas.

Course Portal Communication Email and Announcements

- You are expected to access the course portal each business day …

https://cobra.parkland.edu/

…to obtain information about this course which includes course announcements.

Student Resources Outside Of Class

- If you believe you have a disability for which you may need an academic accommodation (e.g. an alternate testing environment, use of assistive technology or other classroom assistance), please inform the instructor as soon as possible, and/or contact the following for assistance:

  Cathy Robinson, Office of Disability Services
  U260, 353-2338, disabilityservices@parkland.edu

- There are many services offered by Parkland that students do not take advantage of. You have already paid for this stuff when you paid your tuition! Use them!

Service Offered	Phone Number	Location
Library	351-2223	R201
Writing Center	373-3791	D133
Counseling & Academic Advising Center	351-2219	A251

Center for Academic Success

- If you find yourself needing assistance of any kind to complete assignments, stay on top of readings, study for tests, or just to stay in school, please contact one of the following staff at the Center for Academic Success:

  Anita Taylor
  Room: D120
  Phone: 353-2005

  Gail Hoke
  Room: D120
  Phone: 351-2441

Core Values

- Your instructor supports the Core Values espoused by Parkland College: Honesty and Integrity, Fairness and Just Treatment, Responsibility, Multiculturalism, Education, and Public Trust. Essentially, these values set guidelines for how you should be treated and how you should treat each other (and me). Failure to be respectful of one another or to maintain ethical behavior will not be tolerated.

Civility Statement

- Our College Core Values of Fair and Just Treatment and Responsibility serve as guide posts for civility. Parkland College is committed to campus wide civility by cultivating a community where the faculty, staff and students:

  - Respect people and property
  - Show empathy and tolerance
  - Demonstrate concern for and fairness toward others
  - Employ critical thinking and patience
  - Accept accountability for their own actions

Mass Notification System

- In the event of a significant campus emergency, Parkland College will activate its mass notification system. We encourage you to sign up for this free service and select how you would like to be notified: text message, audio message, or email message. Sign up at http://www2.parkland.edu/publicsafety/alerts.htm

Computer Related Technology Assistance for Students

- "Parkland College offers help with technical questions and issues regarding Email, D2L, My.Parkland and Wi-Fi access. Visit the STAR (Student Technical Assistance & Resources) office in D-248, contact the STAR Hotline at 217-353-3333, or email star@parkland.edu for technical assistance."

Grading Scale

- This course employs a points based grading system. You will compare the total points you earned to the total points possible in the course. Dividing the total points earned by the total points possible will give you a percentage. Apply your percentage to this table to determine your grade in this course.

Percentage	Letter Grade
100 (or higher) – 90.000	A
89.999 – 80.000	B
79.999 – 70.000	C
69.999 – 60.000	D
59.999 (or lower)	F

Instructor Points

- Instructor points are points that the instructor may or may not additionally assign for your section at any point throughout the semester.
- Instructor points are meant to include “minor” assignments (i.e. quizzes, reports). These points are not meant to include “major” assignments (i.e. exams).
- Instructor points are part of your grade in the course.

Course Information Forms

- (Based on ICCB Rules) The official master set of signed course information forms shall be maintained in the office of the Vice President for Academic Services for ICCB, public, and student inspection. Each course information form on file shall be dated within three years of the current date. When a course information form changes, the updated version must be placed in the master file. Each department office shall have a duplicate copy of the course information forms for which it is responsible. Each course information form shall contain the course description (matching that in the Catalog), specific objectives of the course, a topical outline, and the method for evaluating student performance. Each course information form shall be professionally prepared in accordance with Curriculum Committee guidelines. This is essential because copies are routinely sent externally to ICCB state universities, and some to Illinois Articulation Initiative (IAI) panels.

  View the CIF for each course you teach every semester you teach it. You may access CIFs by logging in to my.parkland.edu and navigating to the CIF database by clicking on the “Course Information System” link under the Applications Tab.

Illinois Articulation Initiative & Transferability as BIO910

- This course is the second course in a two course sequence for biology majors. The sequence that includes Bio 141 and Bio 142 currently articulates with the IAI Major Course Description for the Introductory Sequence for Biological Sciences Majors: BIO910.

  http://www.itransfer.org/iai/majors/default.aspx?file=iai&section=students&t=Bio&p=da&key=BIO910

Information contained in this syllabus may be subject to change. Any changes to the syllabus will be announced at the beginning of a class period and posted in the portal. Be sure to check the portal each business day for announcements and arrive to class on time

STUDENT GRADE RECORD SHEET
BIO 142

	Points Possible	Points Earned		Points Possible	Points Earned
Module 1 Quiz	80		Lecture Att/Part I	60	
Module 2 Quiz	60		Lecture Att/Part II	60	
Module 3 Quiz	40		Evolution Continuum	30	
Module 4 Quiz	60		Nye vs. Ham	40	
Module 5 Quiz	60		Bio Lit	20	
Module 6 Quiz	60		Nat Sel & Gene Drift	20	
Module 7 Quiz	80		Pilobolus Report	40	
Module 8 Quiz	60		Eco Competition	40	
Module 9 Quiz	80		Std Dev	10	
Module 10 Quiz	60		Nesting Reports	40	
Module 11 Quiz	60		Biostatistics	60	
Module 12 Quiz	60		Gram Stain Lab	20	
			Plant Anatomy	20	
I.S. Topic OK'ed	10		Animal Diversity	20	
I.S. Topic Intro.	40		Sense & Respond	20	
I.S. Materials & Methods	60		Aseptic Technique	10	
I.S. Special Orders	20		Acid Deposition	40	
I.S. Peer Review	20		Lab Att/Part	60	
I.S. Final Paper	120		Final Exam	200	
I.S. PPT	70		Instructor Points	0-100	
I.S. Tilt	80				
Lab Prac #1	100				
Lab Prac #2	80				
				Points Possible	Points Earned
			FINAL GRADE		

Empty spaces are left in the above grade table to accommodate any additional assignments as deemed appropriate by your instructor. These additional assignments fall under the category of Instructor Points.