**General Biology: BI 103 The Dynamic Plant**

**LBCC, Spring 2020**

**CRN: 40935**

**Section: 01 Credits:** 4 credits

**Instructor:** Diana Wheat

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**Office Hours: 1:00 –2:00 pm Monday**

*Via email, Skype or Zoom is possible.*

*Send email morning to request video chat during office hours.*

**Introduction:**

An introductory lab science course intended for majors in disciplines other than the biological sciences, structured particularly for those with an interest in horticulture or botany. The theme for this course is the structure and function of flowering plants, with emphasis on crop and ornamental plants. Topics include plant classification, cell biology, plant reproduction and plant diversity. Biology 101, 102 and 103 need not be taken in numerical order, but **only one theme course in Biology 103** can be used to meet graduation requirements i.e. a student cannot take two BI 103’s.

**Course Format: Entirely online delivery in Spring 2020.**

*Class Meeting via Zoom* ***1 time a week on Wed mornings 10:30-11:30 am***

*Lecture powerpoints and guides to fill out with the lecture or videos supplied in Moodle.*

*All documents (lab reports) and graded items(including tests and quizzes) also supplied in Moodle. If more zoom sessions need to be scheduled e.g on Fridays I will do so, the class will decide week 1 of class.*

**Recommended Prerequisite:**

MTH 075 Variables and Linear Equations, college-level reading and writing also strongly recommended. This course is taught as a discrete and separate course in biology. It is not necessary to have any other biology courses before taking this course.

**Required Texts:**

* Stern's Introductory Plant Biology, 13th ed. Bidlack & Jansky, McGraw Hill (2014)
* Dynamic Plant Lab Manual will be supplied on Moodle (portions of or modified lab activities during campus restriction) no need to purchase from bookstore.

**Advised Materials:**

* Three-ring notebook binder to collect all materials & handouts.
* Hand lens – ***optional***, but may be very helpful.
* Colored pencils 10-12 set package

**Lab materials:** List sent prior to class via email. List also posted on next to last page of this syllabus.

**Graduation limitation:**

Students are ***NOT permitted*** to take two different BI 103 courses to fulfill graduation or transfer requirements. If a student has taken a different BI 103 course e.g. General Bio 103 Plant & Animal Structure & Function or Human Body 103 etc. then this general biology class will not gain the student credit – talk with the instructor for any necessary clarification. Disregarding this policy could cause graduation delays and financial aid issues. ***Majors in biology or environmental science*** are advised that 100 level biology courses will also not meet program requirements for graduation.

**Grading**: Final grades for the course will be determined by each student’s ***cumulative*** point total by the end of the term. The following is an approximation of points for each respective category, and is *subject to change*, as deemed appropriate by the instructor.

**Assessments**:

Midterm = 50 pts

Weekly reading quizzes\* 10 @ 10pts = 90 pts (lowest quiz dropped)\*

Pollinator blog = 15 pts

Labs 10 @ 5 pts each = 50 pts

Plants for survival project = 25 pts

Final Comprehensive exam = 70 pts

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Total = ~**300 points** (Approximation)

**\***Lowest quiz score dropped – no retakes, no make-up quizzes, missed quiz is dropped.

**Grading Scheme:**

A: 90 - 100%, B: 80 – 89%, C: 70 – 79%, D: 60 – 69%, F: 59.4% or below

**Course Outcomes:**

* **List ways that organisms communicate or respond to the environment.**
* **Be able to explain the ways that organisms acquire and utilize nutrients.**
* **Be able to explain the role of transport in organisms.**
* **Be able relate an organisms structure to its functions.**

**I. Class Policies**

**Attendance**: You are **required and expected to examine all lectures**. To the extent possible attending zoom sessions is critical to interaction and having an opportunity ask questions and gain clarification as needed. This course is a lab science course, so it is expected that you will participate and submit 70% of the labs to gain a passing grade.

***Note: Per department guidelines - If a student misses more than 3 lab periods this will result in automatically failing the course, regardless of the overall percentage for the remainder of the course.***

**Late Work:** Will **NOT** be accepted without supporting documentation to show your inability to meet deadlines e.g. a doctor’s note, jury summons, military duty or hospital admission form.

**II. Formal Assessments:**

**A. Moodle Quizzes**

To be found in the Moodle course shell (bottom item per a given week). Quiz will open Monday at 12:01 pm. These will be due Saturday nights\* at 11:55 pm. It is recommended that you finish all assigned reading prior to initiating the Moodle quiz if at all possible. Three attempts are allowed, the highest score will be recorded by your instructor to factor into your grade. The reason for Saturday midnight deadline is that Sundays should be spent starting the upcoming week’s readings rather than working on older material to prepare for a successful week. Quizzes will be 10 points in Moodle and be similar to what will be experienced on the exams, thus it is practice to prepare but also reinforcing of the material.

* Note: With 6 days of flexibility ***no extensions will be granted. In this class the weekly quizzes are a new feature in this course. The lowest quiz will be dropped or if you missed entering into a quiz that will be your dropped quiz.***

**B. Exams**: Will consist of one 50 pt midterm in week 5 and one 70 pt ***final comprehensive*** exam at the end of week 10. Tests are objective consisting of, but not limited to, multiple choice (worth 2 pts each), matching (usually 5 in a set for 5 pts), fill in the blank, short answer, identification, labeling, short lists, analysis of data sets, identifying correlations/associations etc.

The final exam will also have a separate essay component. Tests are timed, one time take and closed book & notes.

**C. Labs:** Each week a set of lab instructions will be placed into Moodle in an area labeled for lab work. In lab week 1 you will be involved with planting seeds and designing an experiment with plant starts e.g. tomatoes, strawberries or peppers (these should be something you or your family would actually eat). Alternatively, if you simply have no ability to procure produce plants you could potentially obtain weedy type plants from a natural area e.g lupine, ox-eyed daisies, dock or some other abundant weed type plant (check with the instructor on this for suggestions). These planting experiments will be long term and you are responsible for caring for your plants. The lab instructions will be posted by Monday morning and are due Friday at noon. Much of the time the labs will involve observing plants, making sketches, answering questions based on observations or sometimes related to the films (see schedule), which are designed to utilize about half of what would be a normal lab period of 2 hours. The activities and any analysis questions must be submitted by Friday noon for 5 pts of credit. Lab reports will be turned in via “Turn it In” option on Moodle so that you can obtain feedback from me directly on your lab reports each week. Expect 3 days for me to grade these, so by the beginning of the next week.

**D. Pollinator Blog:** Instead of weekly homework this term, we are going to have a different approach to homework. You are going to be awarded all of the points for homework in week 10 based on a weekly blog that will be set up using the website “edublogs.org.” This is a free site and you are encouraged to photograph or videotape a wide variety of pollinators that you encounter from taking walks for this class on a weekly basis to document what is blooming and what animals are pollinating those blossoms. Instructions will be discussed in week 1 Zoom meeting. For more details regarding the proposed project visit:

<https://wheatd2020dp.edublogs.org/2020/03/31/purpose-of-project/>

**E. Plants for Survival Project (25 pts):** This is essentially the term paper/investigation that you conduct on your own regarding a plant in your community environs that could be useful in an emergency situation. Wild food and medicinal plants are strongly encouraged for investigation, beyond say just “firewood”, unless a person wanted to do a survey of different thermal levels of trees in our area. The instructions for this project will be distributed in week 3 of the course, with a rubric of grading expectations. In general this “report” could be thought of more as a “public education” flyer that could be used in a horticultural application to promote awareness of the ethnobotanical applications of native plants in our area.

**III. Special Considerations**

**Special Accommodations**: I will be happy to make accommodations for students with disabilities or those with special needs. It is the student’s responsibility to make any needs known to me within the first week of the semester, *in writing*, so that I can give appropriate accommodation. This includes but is not limited to disabilities of visual, hearing, learning, dates needed for religious holidays, court dates etc. If you have not accessed disability services and think that you may need them, please contact CFAR (Center for Accessibility Resources) at 917-4789 or visit RCH 105. For those students with declared disabilities or note-taking needs a letter of accommodation should be brought to the instructor by the end of week 1.

**Academic Misconduct**: This will not be tolerated and includes any form of cheating. If a student is found to have cheated on a quiz or exam, after due process, the resulting grade may be a zero on the given assessment. All group work *must be written in the students* ***own handwriting*** *and language*. You must turn in your own interpretation and work even if doing team lab projects. When submitting group projects a rubric involving a score sheet and guidelines will be provided for expectations. Following group projects students will be expected to provide a self-critique report designed to communicate to your instructor the component of your individual contribution to a group project.

**Incomplete Policy**: An incomplete (IN) will only be issued when a student is unable to complete the last exam by the end of the term, but has otherwise completed 75% of the work in class prior to the final exam. Each incomplete grade will be accompanied by a signed contract specifying the conditions necessary to complete the course. Incompletes are at the discretion of the instructor.

**Withdrawing from Classes (Dropping a Class After the Refund Deadline)**   
To drop a class or withdraw from school, you must turn in a Schedule Change form at the Registration Counter or at an community center or use the SIS system. If you withdraw from a course after the refund deadline, you will receive a "W" grade in the class. The student will forfeit all claims to refunds, and will be financially responsible for any tuition & fees. Failure to drop a class may impact your grade point average and financial aid eligibility. Note: For classes meeting 8 or more weeks, the deadline to withdraw from the class is 5 p.m. on Friday of week 7.

**Behavioral Expectations:** To create an engaging, safe and respectful classroom environment we will honor and appreciate that LBCC offers a learning environment free of discrimination. This course will honor a diverse array of perspectives, free of judgment and encouraging of free discourse. All students are expected to contribute to the learning environment and to share viewpoints in a respectful manner. Please be mindful that a mature, college environment recognizes that though there are differences we all seek to be recognized as a valuable member of our community.

**Comprehensive nondiscrimination policy:** LBCC prohibits unlawful discrimination based on race, color, religion, ethnicity, use of native language, national origin, sex, sexual orientation, marital status, disability, veteran status, age, or any other status protected under applicable federal, state, or local laws (for further information <http://po.linnbenton.edu/BPsandARs/> ). Policy 1015.

**Lab items to obtain before 1st lab**

***To purchase at the grocery store or Garland’s nursery***

* 1 packet of radish seeds
* 1 packet of bean seeds
* 3-6 starter plants (approximately 3-4" tall) of strawberries, peppers or tomatoes.  Not all, just pick one type of plant but buy multiples (generally these can be purchased as a 6 pack for around $3-4.
* Bag of potting soil (if you don't have this at home).
* Optional - 1 gallon plastic pots for the starter plants to transfer into (or use containers at home e.g. cut out milk jugs, paint cans, plastic containers etc).

***To gather at home***:

* 2 egg cartons - 24 cells to start plants
* Deli cups e.g. sour cream containers
* Filter papers or paper towels
* marking pen (ideally permanent ink)
* marking tape
* ruler
* magnifying lens
* graph paper
* 1 qt of sand (or fine gravel)

**Course Objectives:**

**By taking this course a student will be able to:**

* ***Recognize/Identify*** plant structures on various scales.
* ***Understand*** ***the relationship*** between structure and function of plants, and then will be able to ***explain this relationship*** in terms of adaptation(s) to the environment.
* ***Extract***, ***interpret***, critically ***evaluate*** and ***apply*** biological information from various media, such as books, articles, lectures and the Internet.
* Safely and skillfully ***use*** basic biological equipment and techniques to ***collect and evaluate data***. This includes but is not limited to plant specimens, microscopes, electrophoresis equipment, computer spreadsheets and models.
* ***Organize data*** into tables and graphs, to extract information and find patterns to ***draw sound conclusions***.
* ***Describe*** symbiotic relationships between plants and other organisms such as pollinators and fungi and ***understand*** the inter-dependence of these relationships.
* ***Discuss*** how plants can be manipulated for food production, fiber production and aesthetic purposes.
* ***Understand*** how plant science may help address ecological and societal issues such as hunger and global warming.
* ***Demonstrate*** the basic principles of Mendelian genetics, and ***explain*** how traits/characteristics are expressed by the genes.
* ***Paraphrase*** in simple terms some the major techniques of recombinant DNA technology, and ***describe applications*** of DNA technology in various fields.
* ***Identify*** the opposing viewpoints regarding the controversies and ethical concerns related to recombinant DNA technology. Evaluating the benefits and potential dangers of this technology.
* ***Discover*** and ***appreciate*** the unity, diversity, complexity and interdependence of life.

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*"Gardening is a way of showing that*

*you believe in tomorrow."*