1.  **BIO 105-01 Spring 2017 Introduction to Biology**

**Program: Biology**

 **School: Natural Sciences and Mathematics**

1. **Instructor:** Instructor Name: Prof Jinnie Garrett

 Office: GRB 224

 Phone Number: 540-365-4370

 Email: jmgarrett@ferrum.edu

 Office Hours: M 1:30-3:30pm, F 9:00-11:00am

1. **Class & Lab Meeting Time:** TR 8:00-10:20 pm; GRB 221
2. **Textbooks and Materials:**

1. *Biology for a Changing World,* 2nd edition, 2012By: M. Shuster, J. Vigna, G. Sinha, & M. Tontonoz; published by W.H. Freeman; and Portal Access card ( includes eBook and LaunchPad)

2. Laboratory Activities (handouts provided)

1. **Catalog Course Description:**

This course provides the student with a survey of topics in biology with a focus on literacy in biology and the scientific method. The laboratory section provides hands-on learning using scientific protocols and basic tools and instruments. This course is designed for non-science majors and will not count as a prerequisite for upper level Biology courses.

*5 hours, 4 credits*

**Purpose/Rationale for this Course:**

Our society is increasingly influenced by science and technology. In such an environment it is important that educated people understand science and the scientific process.  Biology influences our everyday experiences, from our relationships with the environment, to the foods we consume, to the way we treat diseases. In fact, functioning in the present world without biological knowledge is a distinct handicap, since biological advances are at the forefront of social change. This course provides you with an opportunity to learn about biological concepts, and science in general.

1. **Instructional Methodology and Use of Technology**

The instructor will use the BioPortal Site that accompanies the textbook along with the Brightspace Web site for the course. PowerPoint lectures and assignments will be available on Brightspace. Instructional activities will include class discussions, interactive computer activities and projects, as well as participation in the hands-on laboratory exercises

1. **College and Course Outcomes**

After successful completion of this course students will be able to:

1. understand the scientific method and apply it to everyday problems.
2. understand and use key terms and concepts currently used in the study of biology.
3. analyze and interpret various forms of biological data.
4. discuss natural selection and the scientific evidence of evolution.
5. discuss the relevance of biology to concerns of society.

By successfully achieving these course goals students will meet the following college-wide and program student learning outcomes:



**College-wide Student Learning Outcomes**

* **Program-wide Student Learning Outcomes**

Course goal - Students will be able to understand the scientific method and apply it to everyday problems.

* + Instructional methods include laboratory exercises and class discussions and reports on case studies highlighting current biology topics in the news.
	+ This goal will be assessed based on laboratory reports and case study reports.

**Additional Course Learning Outcomes**

* Course goal - Students will be able to understand and use key terms and concepts currently used in the study of biology.
* Instructional methods include class discussions and case studies that highlight current biology topics.
* This goal will be assessed on module reflection papers and exams.
* Course goal - Students will discuss natural selection and the evidence behind evolution.
* Instructional methods include include lectures, class discussions, laboratory exercises and class activities.
* This goal will be assessed on journal entries, class activities and exams.
* Course goal- Students will understand the relevance of biology to concerns of society.
* Instructional methods will include class discussions and videos on current biology topics that relate to society.
* This goal will be assessed on class presentations/papers, and reflection journal entries.

**Course Assignments**

|  |  |  |
| --- | --- | --- |
| % | **Due Date** | **Assignment** |
| 30% | 2/7, 3/16, 4/27 | Module Tests (3) |
| 20% | Quizzes | 8 best scores from quizzes |
| 20% | TBA – most weeks | Lab Worksheets |
|  10% | Weekly | Reflection journal entries |
| 10% | TBA | Current topic presentation and paper |
| 10% | Throughout course | Attendance & Class Participation |

**Course Assignment Descriptions:**

**Tests:** You will have three tests (one for each module). These will be based on lectures, assigned readings, class/online assignments and lab exercises. Exams will be short answer, in class assessments.

**Quizzes:** These will be given in class in most weeks when there is no test. The best 8/9 scores will be counted.

**Lab Exercises**: There will be lab worksheets to complete each week. These exercises will normally be competed in class period unless they require data collection over an extended period of time. You will not be penalized if experiments did not turn out as expected.

**Bio Topic Presentations and Papers**: Each week assigned students will

1. Choose, and get instructor approval for, a recent article in popular media about a topic relevant to the course.
2. Post a link to the topic on Facebook for class access.
3. Give a ~10min presentation with powerpoint to the class, and lead a discussion in the topic.
4. Write a 2 page summary paper (typed in 12 pt. Times New Roman font, double-spaced, with normal margins) due the day of the presentation.

**Reflection Journal**: Weekly journal entries reflecting on one of the student presentations/FB posts of the week. These will be due in Dropbox on Tuesdays following the week’s presentations. Journal entries must be typed in 12 pt. Times New Roman font, double-spaced, with normal margins. Entries should be 200-300 words.

1. **Evaluation and Grading Evaluation Scale A= 90-100 %**

 **B= 80-89** %

 **C= 70-79 %**

 **D= 60-69 %**

 **F= 0 -59 %**

**X. Attendance Policy:**

College policy dictates that attendance is required at a minimum of 75% of all class meetings in order to receive credit in the course no matter what your grade in the course is. Attendance will be taken at the start of every class. One unexcused absence is allowed; each unexcused absence after that will be a 5 point deduction from your attendance grade. Absence from lab will count as two unexcused absences. Do not miss lab, these are very difficult to reschedule for you to make up. Excused absences are at my discretion, if you know there will be a conflict, please see me as soon as possible. If I decide it will be an excused absence I will expect you to make up any missed work. (Please refer to student handbook on college penalty for missing more than 25% of class time from a course.)

1. **Academic Integrity:**

 In all instances, policies identified in the Ferrum College Catalog and the Ferrum College Student and Faculty Handbooks regarding the Honor System shall be followed. Students are expected to display academic integrity (no lying, cheating or plagiarism) at all times and in all circumstances. Written assignments submitted to Brightspace will be assessed through Turnitin.

1. **Office of Academic Accessibility:**

 Office of Academic Accessibility (OAA): As directed by Ferrum College’s policy, any student with a disability who qualifies for and seeks academic accommodations (such as testing or other services) must work through the Office for Academic Accessibility for accommodations. The office is located Lower Stanley Library, Office 110 and the director may be reached by phone at 365-4262 or by email at [nbeach@ferrum.edu](https://ferrumback3j.ferrum.edu/owa/redir.aspx?C=7a1b1d949f0e45079500524a31db598d&URL=mailto%3anbeach%40ferrum.edu) . Please remember that accommodations cannot be granted retroactively; they must be requested in a timely manner prior to when the accommodation is needed. Students who wish to use accommodations through OAA are encouraged to meet with the director during the first weeks of the semester to discuss the process, and are also invited to read the policy manual on [www.ferrum.edu/disability](https://ferrumback3j.ferrum.edu/owa/redir.aspx?C=7a1b1d949f0e45079500524a31db598d&URL=http%3a%2f%2fwww.ferrum.edu%2fdisability" \t "_blank) for specific information.

1. **Civility in the Classroom Policy**

 Civil behavior and mutual respect between faculty and students are critical in the college classroom environment if teaching, learning, critical thinking, and sharing of ideas are to occur. Respectful and civil behavior at a very basic level includes the following: turning off cell phones; arriving to class on time; engaging appropriately in classroom activities, lecture, or discussion through attentive listening without interruption or side chats; and demonstrating the ability to discuss topics without inappropriate language or attacking others (physically or verbally). Students who do not comply with the Civility in the Classroom policy described in the Faculty

**Lecture/Laboratory Schedule BIO 105-01**

Term: Spring 2017

Instructor: Jinnie Garrett

Class Time: TR 8:00-10.20; GRB 221

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| --- | --- | --- | --- | --- |
|  | **Dates** | **Topic** | **Assessments and Assignments** | **In class Activities/ Labs** |
| 1 | 1/101/12 | Course Introduction;Biology MattersScientific investigations and reasoning | Ch. 1. Java Report | T. Metric system and measurements Th. Intro to Lab SafetyPipetting  |
|  |  | **Module 1: What makes a body? Macromolecules and Nutrition** |  |  |
| 2 | 1/171/19 | Fundamentals of LifeBasic biochemistryCell biology and energy | Ch. 2 Ch. 3Food Diary | T**. Quiz 1**Th. Monitoring Your Health |
| 3 | 1/241/26 | Nutritional requirementsGlobal Crisis: Under-nutritionMacronutrients/ micronutrientsPeanut butter project | Ch. 4 | T. **Quiz 2**Testing the macro-molecules in foods.Th. Nutrient requirements/ output calculationsEnergy profile |
| 4 | 1/312/2 | Global Crisis: Poor /over nutritionObesity/ Diabetes | Ch. 5 & 6 | T. **Quiz 3** Set up GMO plantsTh. Supersize Me |
|  |  | **Module 2 : The next generation. Inheritance** |  |  |
| 5 | 2/72/9 | **Test 1 on module 1**DNA structure and replicationDNA – The information molecule, forensics | Ch. 7 | T. DNA structure and replication worksheetDNA Virtual DNA labTH. DNA extraction strawberry. |
| 6 | 2/142/16 | DNA function, genes to proteinsMake-up day | Ch. 8 | T. **Quiz 4**Monitor plant growth |
| 7 | 2/212/23 | From gene to protein - mutationRecombinant DNA technologies  | Ch. 8 & 10 | T. WorksheetsMonitor plant growthTh. **Quiz 5** DNA extraction, PCR  |

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|  | **Dates** | **Topic** | **Assessments and Assignments** | **In class Activities/ Labs** |
| 8 | 3/73/9 | GMOs/GMHsCell Division/ Mitosis | Ch. 9 & 11 | T. Agarose gelsTh. Microscopy. Onion cell division |
| 9 | 3/143/16 | Meiosis and sexual reproductionMendelian Genetics/ Human Inheritance | Ch. 11Ch.12 | T. **Quiz 6**Meiosis exerciseTh. Mendelian genetics lab/ eugenics |
| 10 | 3/213/23 | DNA mutation/cancer **Test 2** | Ch 11 |  T. Genetic counseling. Human genetics lab cont. |
|  |  | **Module 3: Evolution**  |  |  |
| 11 | 3/283/30 | Evolution and Natural SelectionFossil record | Ch. 14, 15Ch. 16 & 17 | T. Alex Hastings seminarTh. Fossil record lab. |
| 12 | 4/44/6 | Prokaryotic diversityMicrobiomes and human health | Ch. 18 | T. **Quiz 7** Belly button diversityTH. Cont. |
| 13 | 4/114/13 | Eukaryotic diversityVertebrates | Ch. 19 | T**. Quiz 8**Th. Diversity lab. |
| 14 | 4/184/20 | Human diversityBiology and Identity | Ch. 20TBA | T. **Quiz 9**Human migrationsTh . DTC information. 50 Black Canadians |
|  | 4/27  | **Test 3** 8.00-10.00am |  |  |