

Application for General Education and/or Gordon Rule Writing Certification

I. A.) Course Number and Title: PCB 1051 Exploring Your Genome

B.) Credit Hours: 3

C.) Prerequisites: none

D.) Current Classification

1. General Education Code: B C D H M N P S None

2. Gordon Rule (Writing): E2 E4 E6 None

3. Gordon Rule (Math): M None

Requests:

II. General Education

A.) Requested Classification: B C D H M N P S

B.) Effective Date: Fall Spring Summer 2011 (year)

Or

1-time Approval _____ (year)

C.) General Education purpose and learning outcomes for the course? [Detailed attached response requested.]

III. Gordon Rule

A.) Requested Classification for course E2 E4 E6

B.) Writing Requirements:

1.) Number of papers, essays, etc. with word count specified.

2.) Due Dates? Returned with feedback dates?

3.) What type of feedback will be provided the student (in reference to writing skill)?

_____ Grade _____ Corrections _____ Drafts _____ Other

4.) Assessment

a.) Will the written work be evaluated for grammar, punctuation and proper usage of standard written English?

- b.) Will written work be evaluated for an effectiveness, organization, clarity and coherence of writing?
- c.) Will a published rubric be used?

IV. Syllabus

Courses that offer students General Education and/or Gordon Rule credit must provide clear and explicit information for the students about the classification and requirements.

A.) For courses with a General Education classification, the syllabus should include:

- Statement of the General Education Purpose of the Course with attention to the General Education Classification requested
- List of assigned General Education Student Learning Outcomes
- List of any other relevant Student Learning Outcomes
- List of required and optional texts
- Weekly course schedule with sufficient detail (e.g. topics, assigned readings, other assignments, due dates)

B.) For courses with Gordon Rule (writing) classification, the syllabus should include:

- A description/list of Gordon Rule expectations for students (word count, page lengths and deadlines for assignments).
- A statement to the effect that students written assignments will be evaluated with respect to grammar, punctuation, and usage of standard written English, as well as clarity, coherence, and organization. Reference rubric.
- A statement indicating that students will receive feedback on written assignments prior to the last class meeting.
- Assessment note to include basis for grading (rubric) and a statement identifying the two components of the grading, letter grade for course and approved completion of the writing portion of the course.

V. Submission and Approvals

A.) Submitted by (Signature of Instructor): [Signature]

Date 3/10/11

B.) Department Approval: [Signature]

C.) College Approval: [Signature]

D.) Committee Action: Approved Denied Tabled Date _____

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General Education Purpose and Learning Outcomes

PCB 1051 is an introductory science course aimed at increasing scientific literacy, introducing basic principles of genetics and molecular biology, and understanding the role and influence of one's genome on biology and health. This course has no prerequisites and is intended for non- science majors.

The foundation of this course is the sequencing of the human, which is a major scientific development that will have a lasting impact on society, ethics, biology, and medicine.

There are several goals for the course:

1. The course provides students with an understanding of biology through the context of the human genome. This includes teaching the basics of classical genetic principles such as simple heredity and the focusing on the tenants of molecular biology. Significant emphasis is placed on understanding the process of how DNA sequence determines a biological function or trait.
2. The course demonstrates how genomics is a truly integrated field - the product of genetics, molecular biology, chemistry, technology and computer science. Students learn the foundations of gene sequencing and trace the path of technological advances through the years. The students learn the importance of computational and informational technology in accessing and interpreting the genome.
3. The course prepares students for the age of personal genomics by describing a major scientific development, the sequencing of the human genome, and its many far-reaching implications on medicine, evolution, agriculture, biotechnology, and society.
4. Throughout the course, topics are approached scientifically and students are encouraged to formulate their own hypotheses and consider how to interpret results. Scientific thinking is encouraged and students are presented ethical challenges such as genetic testing and other issues that they will encounter as genome sequencing becomes increasingly common.
5. Developing scientific literacy is a significant goal of this course. Genome science is a timely and relevant topic that has applications in many different fields including medicine, agriculture, biotechnology and society. Students are given the tools and resources to investigate genomic results independently once the course is completed. To practice their research skills, students are asked to explore a new genomic development by writing a final paper that includes a discussion of ethical, legal or societal implications of the finding.

These goals are met through online lectures, reading, and online learning supplements. Because genomic advances are commonly in the news, major developments in the field are used as teaching moments and examples of concepts.

The objectives and material are designed to meet the learning outcomes for general education credit in the biological sciences. Students are expected to:

- Know the basic concepts of genetics and molecular biology
- Know the major technological advances that led to the genome sequence and how gene sequencing is shaping biology

- Know how DNA sequence results in a trait or function and how DNA can impact biology and health
- Formulate hypotheses derived from genomic observations and data
- Apply logic and critical thinking in evaluating new discoveries in the genomics field, such as interpreting how a genetic variant is associated with a disease risk
- Understand how the genetic variation may contribute to different disease
- Know how to use reliable resources to learn more about genomic advances in the future
- Communicate genomic advances clearly in written form through a final paper on a topic of their choosing.

Exploring Your Genome

PCB 1051

3 Credit hours

Fall Semester

Course Catalog Description: This course focuses on what the genome sequence is, how it is analyzed, and its implications on human health. The course promotes genetic literacy.

Course Overview: This course has no prerequisites and is intended for non-majors. It will be taught at the introductory level. Since the sequencing of the human genome, the study of genomics has exploded and has uncovered exciting new discoveries and spawned new technological developments. Personal genomics is an emerging field, and it will soon be affordable to obtain the sequence of an individual's own genome. This course will discuss the field of genomics, how genome sequence data is obtained and analyzed, and most importantly, what can be learned from an individual's genome. How does the analysis of one's own genes affect health care, diet, exercise and other health decisions? The course will also include related topics such as disease gene mapping, epigenetics, and the microbiome. This course will also reinforce basic concepts in molecular biology and genetics and promote genetic literacy. The course will be entirely web-based, and all lectures will be delivered online. The reading assignments, course lecture materials and online activities will be posted each week. There will be a quiz each week over the week's material.

Instructor:

Dr. Jennifer Drew

Microbiology & Cell Science

jdrew@ulf.edu

321-693-5485

Skype username: jennifercdrew

I am located off-campus so the best way to contact me is via E-learning email or a phone call.

Office Hours: Since this is a web-based course and I am off-campus, my office hours will be online. The office hours will be conducted via Skype chatroom. We can choose a different method for office hours if needed. I will announce office hour times during the first week of class. I am always available to answer questions by email or to set up an individual phone or Skype conversation.

Email and Announcements: All email communication regarding this course will be done through the Mail function of E-learning. This mail system is private and secure. Please check your Mail and Announcements through E-learning **frequently** to stay updated on the course. As the instructor, I will respond to your questions and emails promptly.

E-learning system: The course will be managed entirely through the E-learning system (<https://lss.at.ufl.edu/>). If you are not familiar with this system, you need to become acquainted with it for this course. The LSS homepage contains tips and tutorials for students as well as a browser check. It is your responsibility to become familiar with E-learning and to ensure that you have the appropriate browsers, settings, etc. For any technical questions regarding the E-learning system, please visit the LSS site (<https://lss.at.ufl.edu/>) and/or the UF Help desk (<http://helpdesk.ufl.edu/>). They can address technical issues such as not being able to view course materials on E-learning, not being able to access the quiz function, not being able to send Mail, etc. **Any and all technical issues/questions/comments should go to the Help Desk first (352-392-HELP).** They are the experts. If you are having technical problems, it is important that you talk to HELP Desk because they will provide a ticket for me and for you that proves that you were having technical difficulties.

If you have problems viewing the lectures and the Help Desk could not resolve the issue, please contact Andres Naranjo in the Microbiology & Cell Science Department.

Andres Naranjo
 andres@ufl.edu
 352-392-5926

Hardware and Software requirements: You must have a computer with Internet access and a supported web browser. To check whether or not you have a supported browser and if your browser settings are properly configured, use the **Browser Tune-up** link on the e-Learning Support Services webpage (lss.at.ufl.edu). To check your version of Java, navigate to the LSS home page and look for the Java Checker in the upper portion of the page. If updating is needed, follow the instructions below the checker. Likewise, a UF Computing HelpDesk consultant can assist you making sure your computer and browser are ready for E-Learning.

Topical outline of lectures:

Week	Dates	Topic for week:
1	Aug 23-29	Fundamentals and structure of DNA
2	Aug 30- Sept 5	Essential processes of DNA
3	Sept 6 - Sept 12	Fundamentals of genetics
4	Sept 13- Sept 19	Biotechnology
5	Sept 20- Sept 26	DNA sequencing technology
6	Sept 27 - Oct 3	Bioinformatics 1 - sequence assembly
7	Oct 4 - Oct 10	Bioinformatics 2 - Sequence analysis

8	Oct 11 - 17	Human genome project
9	Oct 18- Oct 24	Epigenomics - genome and the environment
10	Oct 25 – Oct 31	Diversity in the human genome
11	Nov 1 - Nov 7	Genomes and health 1 - genetic disease basics
12	Nov 8 - Nov 14	Genomes and health 2 – genetic disease – AD example
13	Nov 15 - Nov 21	Genomes and health 3 - cancer
14	Nov 22 - Nov 28	Genomes and health 4 - personalized genomics and medicine
15	Nov 29 - Dec 5	Genomics and beyond
16	Dec 6 - Dec 8	Origins and evolution

General Education Statement: This course satisfies a General Education Requirement in the Biological Sciences. This course provides instruction in basic concepts, theories and terms of the scientific method and genomics. This course focuses on major scientific developments in the field of genomics and their impact on society. As a student in this course, you will apply logical reasoning skills when evaluating new genomic discoveries and learn to communicate scientifically. With this in mind, the following are course objectives:

- 1. This course will promote science literacy by introducing the student to genome science – a timely and relevant topic that has far reaching implications on medicine, evolution, agriculture, biotechnology, and society.**
- 2. This course will prepare students for the age of personal genomics by describing genomes, how they are sequenced and analyzed, and what one can learn from their own genome sequence.**
- 3. This course will demonstrate how technology is shaping and advancing new frontiers in biology through genomics.**
- 4. This course will use genomics to reinforce basic biological concepts like classic genetics, heredity, the central flow of information, evolution, diversity, and speciation.**
- 5. This course will promote critical thinking by presenting the ethical challenges and issues that society will encounter as genome sequencing becomes increasingly common.**

Student Learning Outcomes: The following broad student learning outcomes are based on the course objectives and General Education Student Learning Outcomes:

- Know the basic concepts of genetics and molecular biology
- Know the major technological advances that led to the genome sequence and how gene sequencing is shaping biology

- Know how DNA sequence results in a trait or function and how DNA can impact biology and health
- Formulate hypotheses derived from genomic observations and data
- Apply logic and critical thinking in evaluating new discoveries in the genomics field, such as a interpreting how a genetic variant is associated with a disease risk
- Understand how the genetic variation may contribute to different disease
- Know how to use reliable resources to learn more about genomic advances in the future
- Communicate genomic advances clearly in written form through a final paper on a topic of your choosing.

Grading Scale:

	<u>Percentage</u>
A	90 or above
A-	87-89
B+	84-86
B	80-83
B-	77-79
C+	74-76
C	70-73
C-	67-69
D+	64-66
D	60-63
D-	57-59
E	56 or below

For more information on grade points and UF grading policies, see <http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html>

Assessments: Three proctored exams will be administered during evening assembly exam periods. Each exam is worth 20% of your grade. Exam dates will be announced early in the semester. Students who are located on campus will need to take the exams at the Microbiology and Cell Science Department. Off campus students will need to contact me to make individual arrangements for a proctored exam. Specific details regarding the exams will be given closer to the exam dates.

There will be a final paper due at the end of the semester. This will be worth 20% of your grade. The paper will be 3-5 pages in length and specific details will be given in class.

Brief weekly quizzes will be given that cover each week's material. These short quizzes need to be completed by Sunday evening by 5PM of each week. The quizzes will be taken with Lockdown Browser and you will be given 1 minute to answer each question. Following the lectures and taking the participation quizzes ensure timely participation and progress in the course. The quizzes will count for 20% of your final grade. There will be a total of 16 quizzes. Only the 12 highest quiz grades will count – you can drop

your 4 lowest quiz grades. Your dropped quiz grades will include any quizzes you miss because of illness, travel, interviews, etc. Rarely, technical issues may occur while you are taking the timed quiz, and quizzes affected by technical problems will be among the four dropped quizzes. Plan to take each quiz and save your dropped quizzes for unexpected events like illness or technical problems.

More detailed information about the exams and quizzes will be given in class.

Make up and attendance policy: Please contact the instructor directly regarding any serious illnesses or prolonged absences. Since the course is online and the material can be viewed by the students at their convenience, missed weekly quizzes and online exams will only be made-up in unusual circumstances and written verification from doctors, etc. may be required. Most quizzes missed due to illness can count among the 4 dropped quiz grades.

Required Reading: GENOME

Matt Ridley

Harper Perennial Publishing 2006

The book provides information that is different than the content presented in the lectures. It is not a textbook, it provides a historical/social/cultural perspective in an interesting and readable way. The assigned chapters are tied to the week's topic so that the reading provides a unique context for understanding the concepts covered that week in lecture.

There is no textbook for the course. The theoretical information will be given in lecture, through handouts, and web links. Individual articles and materials will be posted online as additional required readings.

Academic Honesty: The University of Florida requires all members of its community to be honest in all endeavors. Cheating, plagiarism, and other acts diminish the process of learning. When students enroll at UF they commit themselves to honesty and integrity. Your instructor fully expects you to adhere to the academic honesty guidelines you signed when you were admitted to UF.

As a result of completing the registration form at the University of Florida, every student has signed the following statement:

"I understand the University of Florida expects its students to be honest in all their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University." Furthermore, on work submitted for credit by UF students, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

Software Use: All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate.

Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu/cwc/*

Counseling Services

Groups and Workshops

Outreach and Consultation

Self-Help Library

Training Programs

Community Provider Database

- *Career Resource Center, First Floor JWRU, 392-1601, www.crc.ufl.edu/*

Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues.

0001 Reid Hall, 352-392-8565, www.dso.ufl.edu/drc/