Syllabus

PCB3063  Genetics

LOCATION  58A/106
CLASS TIME  M W 1:00 PM - 2:15 PM
INSTRUCTOR  Dr. Hui-Min Chung
Office: 58/62C, Lab: 58/110
Tel.: 850-474-2321 (office), 850-473-7067 (lab)
E-mail: hchung@uwf.edu

OFFICE HOURS  Tuesday, Thursday: 9:00 AM-noon, or by appointment
COURSE COREQUISITES  PCB3063L, Genetics Laboratory

COURSE MATERIAL

• “Concepts of Genetics” (with Mastering Genetics Access) 11e, by Klug, published by Pearson
  The Mastering Genetics website materials will be used, and the MasteringGenetics Course ID is
  KLUGMGENCHUNGSPEAR2016
• Others: including various materials adopted from videos and literatures, the PowerPoint files to
  accompany each lecture will be posted online by the evening before each class. I use
  PowerPoint to provide illustrations and sometimes outline topics but not to write out every
  idea; viewing a PowerPoint file therefore does **not** substitute for attending lecture.

DESCRIPTION OF COURSE TOPICS

PCB 3063, Genetics, is a 3-credit lecture/1-credit laboratory course designed to provide students with a
foundation in the origin, development, and principles of modern genetics. The accompanying
laboratory (PCB 3063L) re-enforces the principles presented in lecture and provides students with the
opportunity to perform basic genetic manipulations.
The course is problem-based learning. After learning the content, students would use problem solving
exercises to train their transferable skills, including experimental and observation skills, data analysis,
and communication skills.

STUDENT LEARNING OUTCOMES

This course meets the following programmatic goals for the B.S. Biology:

• Content and Critical Thinking:
  o By the end of semester, students should be able to define specific terms of genetic
    materials, describe the basic genetic principles, and solve problems/questions related to
    genetics.
  o By the end of semester, students should be able to evaluate genetic and environmental
    impacts on human health.
• Communication:
By the end of semester, students should be able to discuss impacts of contemporary development of genetic and genomic studies on life sciences and global environment. Fulfillment of these goals will be assessed in class discussion, quizzes, exams and poster presentation.

ASSESS LEARNING STYLE

To help your learning, it is very helpful to know your learning style. A few tips on know how to learn well are listed below:

1. Think about thinking:
   http://www.youtube.com/watch?v=P_b44JaBQ-Q
   https://www.youtube.com/watch?v=rZ80jZbSNFk
2. The general rules of the study cycle’s steps:
   http://www.youtube.com/watch?v=YlZMBsMZnO

EVALUATION OF STUDENT WORK

A single grade is given for both the genetics lecture and laboratory courses. The lecture portion comprises 75% and the laboratory component comprises 25% of the final grade.

\[
\text{Final Average of the Course} = (0.75 \times \text{Lecture Average}) + (0.25 \times \text{Lab Average})
\]

- The Lecture average is assigned based on the following criteria:
  
  Homework: 12%     Exam 1: 21%     Exam 2: 21%     Exam 3: 23%
  Quiz: 10%          Group Project*: 13%  Bonus points**: 2%

*See appendix 2.
**Bonus points are based on class participation and the “Family history of health” assignment.

- Your laboratory instructor will provide me with your lab grade (Lab Average).

The course average will be rounded to the nearest whole number and the final grade assigned as follows:

- A: 93-100%     A−: 90 - 92.9%
- B*: 87. - 89.9%      B: 83-86.9%     B−: 80-82.9%
- C*: 76-79.9%     C : 70-75.9 %     D*: 67-69.9%     D: 60-66.9%     F: <60%

ASSISTANCE FOR STUDENTS WITH SPECIAL NEEDS

Students who require specific accommodations for examinations or other course activities should contact Barbara Fitzpatrick, Director of the Student Disability Resource Center (SCRC) (web address: http://www.uwf.edu/SDRC, e-mail: sdrct@uwf.edu, telephone: 474-2387). SDRC will provide the student with a letter for the instructor that will specify recommended accommodations for individual students.

UNIVERSITY POLICY ON ACADEMIC CONDUCT
Academic dishonesty is a serious offense and will be taken seriously. Please refer to the UWF Student Handbook for a list of behaviors that fall under the definition of academic misconduct. The Handbook also outlines the penalties for academic misconduct and the due process procedures that must be followed. The handbook is posted on the UWF web site at: http://uwf.edu/media/university-of-west-florida/offices/student-affairs/vp-office/documents/University-of-West-Florida-Student-Handbook-2015-8-15.pdf

The Student Code of Conduct (PDF) sets forth the rules, regulations, and expected behavior of students enrolled at the University of West Florida. Violations of any rules, regulations, or behavioral expectations may result in a charge of violating the Student Code of Conduct. It is the student’s responsibility to read the Student Code of Conduct and comply with these expectations. The Academic Misconduct Policy (2009) defines various forms of academic misconduct and describes the procedures an instructor should follow when he or she suspects that a student has violated the Academic Misconduct Policy.

CLASS POLICIES

- It is the responsibility of students to attend the class. You must take attendance in the first week for financial aid verification.
- The instructor will periodically send important announcements via email. You are responsible for any information/assignments/instructions I send by email. Make sure your e-mail account is valid and not saturated; if you have multiple e-mail accounts, make sure messages from your student account are forwarded to the one you use mostly.
- Cell phones and pagers should be turned off during the class. The classroom environment is an important factor influencing a student’s ability to learn, especially in a large class.
- Students should refrain from activities that distract or disrupt the attention of other students during lecture (e.g., distracting noises or mannerisms, unnecessary conversation, arriving late, leaving early.)
- Students with learning impediments should contact the instructor as soon as possible and every reasonable attempt will be made to accommodate the student’s needs.
- The instructor reserves the right to modify the order and content of lectures and presentations, and dates of exams, but agrees to provide at least 5 days advance notice of any change.
- Requests for corrections of putative grading errors must be made within one week of receiving the corrected exam or assignment.
- Make-up exams will be allowed only for university-recognized excused absences. To be eligible for a make-up exam, the student must personally inform the instructor via phone that he/she will be absent prior to administration of the exam, or in the event of an emergency, as soon as is reasonably possible. Make-up exams must be taken within one week of the originally scheduled exam.
- Any necessary announcement will be made during regular class periods. It is the responsibility of the student to be aware of and appropriately act upon any announcements.
**Appendix 1: Course content and schedule**

Note: The timeline of topics discussed in the class is subject to change; dates for homework, quizzes and exams are fixed.

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture Dates</th>
<th>Topic</th>
<th>Klug 11e chapter or special topic</th>
<th>Quiz/exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jan. 6</td>
<td>Class intro and assessment</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Jan. 11, 13</td>
<td>Overview, and cell division</td>
<td>1, 2</td>
<td>Homework 1 due on Jan 11 12:00 PM</td>
</tr>
<tr>
<td>3</td>
<td>Jan. 18, 20</td>
<td>From DNA to gene function</td>
<td>10-15</td>
<td>(No class on Jan. 18)</td>
</tr>
<tr>
<td>4</td>
<td>Jan. 25, 26</td>
<td>From DNA to gene function</td>
<td>10-15</td>
<td>Homework 2 due on Jan 25 12:00 PM Jan. 25: Quiz 1</td>
</tr>
<tr>
<td>5</td>
<td>Feb. 1, 3</td>
<td>From DNA to gene function</td>
<td>10-15</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Feb. 8, 10</td>
<td>Mendel’s principles and its application</td>
<td>3, 4, 7</td>
<td>Feb. 8: Exam 1</td>
</tr>
<tr>
<td>7</td>
<td>Feb. 15, 17</td>
<td>Mendel’s principles and its application</td>
<td>3, 4, 7</td>
<td>Homework 3 due on Feb. 15 12:00 PM</td>
</tr>
<tr>
<td>8</td>
<td>Feb. 22, 24</td>
<td>From linkage mapping to modern genomics</td>
<td>5, 9, 20, 21</td>
<td>Feb. 22: Quiz 2</td>
</tr>
<tr>
<td>9</td>
<td>Feb. 29, Mar. 2</td>
<td>From linkage mapping to modern genomics</td>
<td>5, 9, 20, 21</td>
<td>Group project list due on March 4</td>
</tr>
<tr>
<td>10</td>
<td>Mar. 7, 9</td>
<td>Chromosome variation and cancer</td>
<td>8, 19</td>
<td>March 7: Exam 2</td>
</tr>
<tr>
<td>11</td>
<td>Mar. 14, 16</td>
<td>Spring Break</td>
<td></td>
<td></td>
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<tr>
<td>12</td>
<td>Mar. 21, 23</td>
<td>Epigenetics</td>
<td>Special topic 1</td>
<td>Homework 4 due on March 21 12:00 PM</td>
</tr>
<tr>
<td>13</td>
<td>Mar. 28, 30</td>
<td>DNA forensics Genetically modified foods</td>
<td>Special topics 3 and 5</td>
<td>Group project draft due at 10:00 PM, April 1 (through e-mail submission)</td>
</tr>
<tr>
<td>14</td>
<td>Apr. 4, 6</td>
<td>Population and evolution genetics</td>
<td>25</td>
<td>Homework 5 due on April 4 12:00 PM</td>
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<tr>
<td>15</td>
<td>Apr. 11, 13</td>
<td>Group project poster exhibition</td>
<td></td>
<td></td>
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<tr>
<td>16</td>
<td>Apr. 18, 20</td>
<td>Population and evolution genetics</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Apr. 27</td>
<td>Final exam</td>
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Appendix 2: Group project

Group Project - “A critical analysis on a XXX research found in a recent news item”

Pick a genetics/genomics related news story from 2013 or later that intrigue your interest. Identify the original research paper* that is the core substance of the news. Study the paper in detail, and then critically analyze the issue in detail and how it fits within a broader context. Each group is composed of 2-4 students. The first draft counted for 3% of the group project is due on April 1; the final draft is to be presented as a poster during the week of April 11 2016.

The poster should contain:

- Title: A critical analysis on a XXX research found in a recent news item
- Research paper source:
- Summary of the followings based on the original paper:
  - Background information
  - Author’s question/hypothesis
  - Experimental design
  - Materials and methods
  - Results
  - Conclusion
- Our own conclusion (based on the experimental design and result of the paper): Yes, we agree with the authors’ conclusion or No, not quite agree, and why
- Critical analysis of the news item
- References