# HONORS GENETICS (BIOLOGY 350) TOPIC SCHEDULE

**FALL 2011**

**Tuesdays and Thursdays, 8:00 AM – 10:45 AM in Folsom 304**

Drs. Rachael Hannah and Bonnie Wood

## CLASSICAL (TRANSMISSION) GENETICS

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<th>WEEK</th>
<th>HOMEWORK</th>
<th>TUESDAY</th>
<th>THURSDAY</th>
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| 7    | **Due before 10/13:** Take Pretest: Classical Genetics on Bb | 10/11: HOLIDAY- NO CLASS | 10/13: Introduction to Classical Genetics  
- Prepare onion bulblets for sprouting  
- Case Study: A Sicknessly Sweet Baby Boy: A Case Study on Recessive Inheritance in Inbred Populations |
| 8    | Ch. 2, Outline 1  
**Due 10/18:** Cut out pink and blue chromosomes & bring to class with 6 paperclips  
**Due 10/20:** On Bb, read "The Made to Order Savior" and "Having a Child to Save Another" | 10/18: Chromosomes and Cellular Reproduction: Mitosis  
- Chromosome socks: Find your homologue and make a karyotype  
- Paper chromosomes  
- Mitosis in Plants and Animals | 10/20: Chromosomes and Cellular Reproduction: Meiosis  
- Chromosome socks: Act out mitosis and meiosis  
- Paper chromosomes  
- Meiosis and Fertilization  
- Gamete Problem Sets  
- Case Study: Make a Life to Save a Life |
| 9    | **Due 10/25:** Ch. 3, Outline 2  
**Guest speaker:** Jonathan Stormer with Atlas | 10/25: Basic Principles of Heredity  
Monozygotic Crosses  
- Case Study: Woe to That Child: A Case of Cystic Fibrosis  
- Case Study: "Not Exactly..." | 10/27: Instructions for Student Presentations on Primary Literature  
**Guest speaker:** Stephanie Corriveau  
- Selection of articles  
- Evaluation criteria |
| 10   | **Due 11/1:** Outline 2, cont’d; read pp. 104-106  
**Due 11/3:** Ch. 4; Outline 3; Read on Bb "The Curse of the Garcias", "A Question of Gender", "Redefining the Sexes in Unequal Terms" & "Why the Y is so Weird"; Visit color-blindness exhibit, Northern Maine Museum of Science | 11/1: Basic Principles of Heredity: Dihybrid Crosses and Multiple Alleles  
- Inheritance of ABO Blood Types in Humans  
- ABO/Rh Blood-Typing Model  
- Simulated Blood Typing: Whodunit | 11/3: Sex Determination and Sex-Linked Characteristics  
- Barr Bodies  
- Case Study: Gender: In the Genes or in the Jeans?  
- Video: Birth, Sex, and Death  
- Case Study: The "Lady" of Charleston |
| 11   | **Due 11/8:** Ch. 3, Outline 4 | 11/8: Predicting the Outcome of Genetic Crosses  
- Predicting Probabilities in Dihybrid and Multifactorial Crosses | 11/10: ASSESSMENT: TEST ON OUTLINES 1-4 |
| 12   | **Due 11/15:** Ch. 5; Outline 5; Read on Bb "Eye Color Explained". | 11/15: Extensions and Modifications of Basic Principles  
- Epistasis in Labrador Retrievers  
- Case Study: More Than Meets the Eye | 11/17: Extensions and Modifications of Basic Principles  
- Case Study: The Case of Desiree's Baby |
| 13   | **Due 11/22:** Ch. 6; Outline 6; On Bb read: "What are the Risk Factors for Breast Cancer?" and "Do We Know What Causes Breast Cancer?" | 11/22: Human Pedigree Analysis, Applications, Genetic Testing  
- Taste Testing for a SNP  
- Case Study: To the Bitter End  
- Coin Toss Pedigrees  
- Case Study: In Sickness and in Health  
- Case Study: Bloodline  
- Organize Team Presentations on Case Study: Breast Cancer Risk | 11/24: NO CLASS TODAY - HOLIDAY |
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<th><strong>Due 11/29: Ch.6, Outline 6. Submit typed answers to Breast Cancer Risk, Intro, Questions 1-5; Team oral presentations. Due 12/1: Ch.9, Outline 7</strong></th>
<th><strong>11/29: Human Pedigree Analysis, Applications, Genetic Testing</strong>&lt;br&gt;- Team Presentations Breast Cancer Risk Using Real Medical Histories to Rank Genetic and Environmental Influences&lt;br&gt;- Case Study: Those Old Kentucky Blues</th>
<th><strong>12/1: Chromosome Variation</strong>&lt;br&gt;- Human Chromosome Analysis&lt;br&gt;- Case Study: Giving Birth to Someone Else’s Children? A Case of Disputed Maternity&lt;br&gt;- Case Study: The “Wolfman” and the Chromosomal Basis of Heredity&lt;br&gt;- Posttest: Molecular And Transmission Genetics: Individual and Team</th>
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<tr>
<td>14</td>
<td><strong>Due 12/6: Human Chromosome Analysis</strong></td>
<td><strong>12/6: Student Presentations on Primary Literature</strong></td>
<td><strong>12/8: Student Presentations on Primary Literature</strong></td>
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<td>15</td>
<td><strong>TUESDAY, DECEMBER 12, 2011</strong>&lt;br&gt;<strong>8:00 AM TO 10:00 AM</strong>&lt;br&gt;<strong>COMPREHENSIVE FINAL EXAM</strong></td>
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