GENETICS BIOL 305  
Fall 2021

INSTRUCTOR: Agnes Ayme-Southgate  
e-mail: southgatea@cofc.edu  
Virtual office hours: on zoom by appointment

<table>
<thead>
<tr>
<th>Instructor:</th>
<th>Agnes Ayme-Southgate</th>
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<tbody>
<tr>
<td>Office:</td>
<td>RITA 225</td>
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<tr>
<td>Office Hours:</td>
<td>Set up time by email, by ZOOM only</td>
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<tr>
<td>Email:</td>
<td><a href="mailto:southgatea@cofc.edu">southgatea@cofc.edu</a></td>
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Course schedule  
TR  12:15 pm - 1:30 pm  Rita Liddy Hollings Sci Center 101

This is an in-person class. However special accommodation due to COVID will be granted if necessary. Please feel comfortable contacting me any time if you need to be online (even for a short time):  
- feeling sick,  
- awaiting results from PCR test  
- quarantine  
- qualifying medical condition, etc.

Work schedule is not a qualifying reason to be online.

Recording of Classes  
Class sessions will be recorded via both voice and video recording, but only available if you have a VALID reason not to be present in the classroom (see above). By attending and remaining in this class, the student consents to being recorded. Recorded class sessions are for instructional use only and may not be shared with anyone who is not enrolled in the class.
COURSE DESCRIPTION:
The basics of the science of heredity. The course encompasses Mendelian genetics, the molecular basis of inheritance, changes in chromosome number and structure, gene mapping, mutations and population genetics. Population and quantitative genetic approaches are applied to clarify the understanding of evolution.

LEARNING OUTCOMES:
- Understand the interpretation of genetic information (genotype) into a phenotype
- Acquire mastery of the genetics concepts governing the transfer and changes of genetic information.
- Become familiar with genetics databases and analysis tools.
- Develop critical and analytical skills through problem solving.

TEXTBOOK
No textbook required. Materials available on OAKS Content.

EXPECTATIONS and WAYS to SUCCEED
OAKS, including Gradebook, will be used for this course throughout the semester to provide the syllabus, class materials, announcements, and grades for each assignment, which will be regularly posted. It is your responsibility to check OAKS for updates each day.

I will follow a partial reverse teaching method, i.e. I will not teach all the material. We will use about half of each class time for activities and problem solving, which is why it is critical that you come prepared to each lecture. You are expected to come prepared to class by reading the materials in the corresponding module BEFORE class time. When reading the book chapter, pay special attention to the “test yourself” questions (example below).

It is also essential that you work on the practice problems (but don’t check the key until after you have tried!)

TEST YOURSELF #2: Using the R loop image, indicate how many introns are present in this gene. Draw an exon-intron graph for this gene (use random sizes for exons and introns).
Quizzes will be made available on OAKS for self-test. No grade assigned.

**Contact your instructor**

It is essential that you stay on top of the course reading assignments and practice problems. It is critical that you do not fall behind. The material is quite heavy and will take time and effort on your part to master. If you do not understand a concept, experiment or how to solve a problem, do not give up. The material builds on itself, *i.e.* if you do not understand something at the beginning, it will haunt you for the rest of the course. The best approach is to reach to your instructor immediately either after class or by email ([southgatea@cofc.edu](mailto:southgatea@cofc.edu)). I check my email regularly and you can expect a response within 2-3 hours to set up a virtual office visit.

**TESTING**

1. Class work questions and exercises during class time done in team 25%
   a) 50% points for completing worksheet in class (whether answers are correct or not)
   b) 50% points for correct answers

See COVID plan for Online meetings

2. 3 tests during the semester. 50%; 14% for lowest grade; 18% for the other two. In class

3. Final exam 25%

Tests and exams will be in-person, unless the course becomes entirely online. In which case, tests and finals will be through OAKS quizzes

**GRADING SCALE:**

92 and above: A
90-91.9: A-
87-89.9: B+
83-86.9: B
80-82.9:B-
77-79.9: C+
74-76.9: C
70-73.9:C-
67-69.9: D+
64-66.9: D
60-63.9: D-
below 60:F
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<tbody>
<tr>
<td><strong>Aug-21</strong></td>
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<tr>
<td>Tuesday, August 24</td>
<td>Semester begins</td>
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<tr>
<td>Monday, August 30</td>
<td>Last day of Drop/Add for full semester classes. Last day for students to submit a request to Audit or apply for a Pass/Not Pass grade option full semester classes.</td>
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<tr>
<td><strong>Sep-21</strong></td>
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<tr>
<td>September 14th</td>
<td>TEST 1</td>
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<tr>
<td>September 25 - Sunday, September 26</td>
<td>Storm Day Makeup (on campus instruction for PE Activity Courses, labs, studio, performance courses only; virtual instruction on these days for all other courses). (SD*)</td>
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<tr>
<td><strong>Oct-21</strong></td>
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<tr>
<td>October 7th</td>
<td>TEST 2</td>
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<tr>
<td>Monday, October 18</td>
<td>Fall Break. No classes.</td>
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<tr>
<td>Tuesday, October 19</td>
<td>Fall Break. No classes.</td>
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<tr>
<td>Wednesday, October 20</td>
<td>Classes resume.</td>
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<tr>
<td>Friday, October 29</td>
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<tr>
<td>Monday, November 1</td>
<td>Spring 2022 early registration begins based on earned hours. NOTE: Holds will prohibit students from being able to register. Students should settle holds with the office that placed the hold before their opportunity to register.</td>
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<td><strong>Nov-21</strong></td>
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<tr>
<td>Tuesday, November 2</td>
<td>TEST 3</td>
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<tr>
<td>Saturday, November 6 - Sunday, November 7</td>
<td>Storm Day Makeup (on campus instruction for PE Activity Courses, labs, studio, performance courses only; virtual instruction on these days for all other courses). (SD*)</td>
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<tr>
<td>Wednesday, November 24</td>
<td>Thanksgiving Holiday. No Classes.</td>
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<tr>
<td>Thursday, November 25</td>
<td>Thanksgiving Holiday. No Classes. College Closed.</td>
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If in-person classes are suspended by the College of Charleston officials, the plan outlined below will be implemented to ensure the continuity of learning. All students must have access to a computer equipped with a web camera, microphone, and Internet access. Resources are available to provide students with these essential tools.

Lecture will be by zoom SYNCHRONOUS, i.e. at the indicated times for the lecture.

Class Participation will be evaluated as follows;
Class work (questions and exercises during class time) 25%
   a) 50% points for participation: being present on Zoom with video ON, working on problems and posting answers DURING class time via OAKS quizzes.
   b) 50% points for correct answers

Tests and exams will be through OAKS quizzes at a specific time (lecture time for tests). Distribution of points will stay the same.

This set up is also available to students who must be online by special accommodation due to COVID (short or long term). Please feel comfortable contacting me any time if you need to be online (even for a short time):
   • feeling sick, known exposure
   • awaiting results from PCR test
   • quarantine
   • qualifying medical condition, etc.

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tr>
<td>Friday, November 26</td>
<td>Thanksgiving Holiday. No Classes. College Closed.</td>
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<tr>
<td>Saturday, November 27</td>
<td>Thanksgiving Holiday. No Classes. College Closed.</td>
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<tr>
<td>Sunday, November 28</td>
<td>Thanksgiving Holiday. No Classes. College Closed.</td>
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<tr>
<td>Dec-21</td>
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<tr>
<td>Monday, November 29</td>
<td>Classes resume</td>
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<td>Monday, December 6</td>
<td>Last day of full semester classes.</td>
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<td>Tuesday, December 7</td>
<td>Reading Day.</td>
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<td>Wednesday, December 8</td>
<td>Full semester and Express II final exams begin.</td>
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<td>Full semester and Express II grading open for faculty.</td>
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<tr>
<td>Monday, December 13</td>
<td>FINAL EXAM 1-3 pm</td>
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CONTENT: reflect the modules as posted under OAKS Content
Welcome and course general information
Module 1: An introduction to Genetics
Module 2: DNA as the genetic material and the flow of genetic information (review)
Module 3: Chromosome structure
Module 4: Genome architecture, elements and gene number
Module 5: Transposable elements
Module 6: Chromosome mutations and cytological mapping
Module 7: Meiosis and gametes
Module 8: Monogenic transmission pattern #1: segregation of alleles
Module 9: Monogenic transmission pattern #2: independent assortment and probability
Module 10: Data evaluation by statistical analysis
Module 11: Linkage and inheritance pattern
Module 12: Sex-Linkage
Module 13: Genes structure and function
Module 14: Transcription and control of gene expression
Module 15: Protein structure-function
Module 16: Simple mutations
Module 17: Gene mutations and alleles: revisiting the concept
Module 18: Oligogenic inheritance and gene networks
Module 19: Quantitative and complex traits
Module 20: Pedigree
Module 21: Population genetics
Module 22: Detecting polymorphisms
Module 23: Gene mapping, an introduction
Module 23: Family-based monogenic character mapping
Module 24: Genes identification for complex traits

COURSE POLICIES
Because of COVID, no eating or drinking within the classroom

You can use laptop/tablet in class for taking notes, completing class assignments, but please refrain from other activities (e.g. checking email).

“Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when suspected, are investigated. Each incident will be examined to determine the degree of deception involved.

Incidents where the instructor determines the student’s actions are related more to misunderstanding and confusion will be handled by the instructor. The instructor designs an intervention or assigns a grade reduction to help prevent the student from repeating the error. The response is recorded on a form and signed both by the instructor and the student. It is forwarded to the Office of the Dean of Students and placed in the student’s file.

Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive an XXF in the course, indicating failure of the course due to academic dishonesty. This status indicator will appear on the student’s transcript for two years after which the student may petition for the XX to be expunged. The F is permanent.

Students can find the complete Honor Code and all related processes in the Student Handbook at: http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php.”

RESOURCES FOR SUCCESS

- **Disability/Access Statements:**
  Any student eligible for and needing accommodations because of a disability is requested to speak with the professor during the first two weeks of class or as soon as the student has been approved for services so that reasonable accommodations can be arranged.

- **Center for Student Learning:**
  The Center for Student Learning’s (CSL) academic support services provide assistance in study strategies, speaking & writing skills, and course content. Services include tutoring, Supplemental Instruction, study skills appointments, and workshops. Students of all abilities have become more successful using these programs throughout their academic career and the services are available to you at no additional cost. For more information regarding these services please visit the CSL website at http://csl.cofc.edu or call (843) 953-5635.

- **Mental & Physical Wellbeing:**
  At the college, we take every student’s mental and physical wellbeing seriously. If you find yourself experiencing physical illnesses, please reach out to student health services (843.953.5520). And if you find yourself experiencing any mental health challenges (for example, anxiety, depression, stressful life events, sleep deprivation, and/or loneliness/homesickness) please consider contacting either the Counseling Center (professional counselors at http://counseling.cofc.edu or 843.953.5640 3rd Robert Scott Small Building) or the Students 4 Support (certified volunteers through texting "4support" to 839863, visit http://counseling.cofc.edu/cct/index.php, or meet with them in person 3rd
Floor Stern Center). These services are there for you to help you cope with difficulties you may be experiencing and to maintain optimal physical and mental health.

- **Inclusion:**
  - The College of Charleston offers many resources for LGBTQ+ students, faculty and staff along with their allies.
  - Preferred Name and Pronoun Information
  - On Campus Gender Inclusive facilities
  - Campus Resources
  - College of Charleston Reporting Portals
  - National Resources for Faculty & Staff
  - GSEC Reports
  - Documenting LGBTQ Life in the Lowcountry (CofC Addlestone Library Special Collections Project)
  - College of Charleston Quality Enhancement Plan (QEP)
  - Articles about CofC and LGBTQ+ Issues

- **Statement on “Religious Accommodation for Students”**
  - The College of Charleston community is enriched by students of many faiths that have various religious observances, practices, and beliefs. We value student rights and freedoms, including the right of each student to adhere to individual systems of religion. The College prohibits discrimination against any student because of such student’s religious belief or any absence thereof.
  - The College acknowledges that religious practices differ from tradition to tradition and that the demands of religious observances in some traditions may cause conflicts with student schedules. In affirming this diversity, like many other colleges and universities, the College supports the concept of “reasonable accommodation for religious observance” in regard to class attendance, and the scheduling of examinations and other academic work requirements, unless the accommodation would create an undue hardship on the College. Faculty are required, as part of their responsibility to students and the College, to ascribe to this policy and to ensure its fair and full implementation.
  - The accommodation request imposes responsibilities and obligations on both the individual requesting the accommodation and the College. Faculty members are expected to reasonably accommodate individual religious practices. Examples of reasonable accommodations for student absences might include rescheduling of an exam or giving a make-up exam for the student in question; altering the time of a student’s presentation; allowing extra-credit assignments to substitute for missed class work or arranging for an increased flexibility in assignment dates. Regardless of any accommodation that may be granted, students are responsible for satisfying all academic objectives, requirements and prerequisites as defined by the instructor and by the College.

- **Food & Housing Resources:**
  - Many CofC students report experiencing food and housing insecurity. If you are facing challenges in securing food (such as not being able to afford groceries or get sufficient food
to eat every day) and housing (such as lacking a safe and stable place to live), please contact the Dean of Students for support (http://studentaffairs.cofc.edu/about/salt.php). Also, you can go to http://studentaffairs.cofc.edu/student-food-housing-insecurity/index.php to learn about food and housing assistance that is available to you. In addition, there are several resources on and off campus to help. You can visit the Cougar Pantry in the Stern Center (2nd floor), a student-run food pantry that provides dry-goods and hygiene products at no charge to any student in need. Please also consider reaching out to Professor ABC if you are comfortable in doing so.