SENIOR SEMINAR: MITOCHONDRIAL GENOMICS

BIOL 4930 005 - Fall 2020

Class meeting times
Lecture: Wednesday 10:10 am - 12:00 pm, Long Hall 222 (room might change in the future)
[this course is also taught online (via *Zoom*) due to the current pandemic situation]

Instructor Information
Instructor: Dr. J. Antonio Baeza
Office: 226 Long Hall
Laboratory: 101 Jordan Hall
Phone: 656-1488
E-mail: jbaezam@clemson.edu
Web page: http://www.clemson.edu/cafls/departments/biosci/faculty_staff/baeza_a.html
Office hours: TH 9:30 - 10:30 AM, 226 Long Hall (***online***, previous appointment)

Planned modality of the course: Blended/Hybrid
This course will be synchronous online. We will meet via Zoom on the day/time designated for the class meeting. Using a variety of multimedia elements, I have designed an engaging and high-quality environment. This course will be hybrid, which means it will contain a blend of synchronous online and face-to-face instruction. Hybrid courses use a variety of multimedia elements, as well as live, face-to-face opportunities. Blending these offerings will provide an engaging and supportive environment for you to the learn the material. Be assured that no matter what medium is used, I have taken a deliberate approach to ensure you a high-quality experience.

Important: This course will be synchronous online until September 21. Should conditions direct, ***I reserve the right to continue the course in a synchronous online format on that date or to return to that format in the future***. Any decision regarding a change in modality will be communicated to you through Canvas and any required modifications to the syllabus will be distributed

Teaching buddy: Dr. Vincent P. Richards

In short: **in this course, we will learn about mitochondrial genomes. Mitochondria are organelles of utmost importance in 99.999% of uni-cellular and multi-cellular organisms. Perhaps more importantly, I will expose you to the scientific method and you will learn to think critically. We will be using various mitochondrial genomes as examples to improve your critical thinking skills. You will also improve your information literacy skills.**

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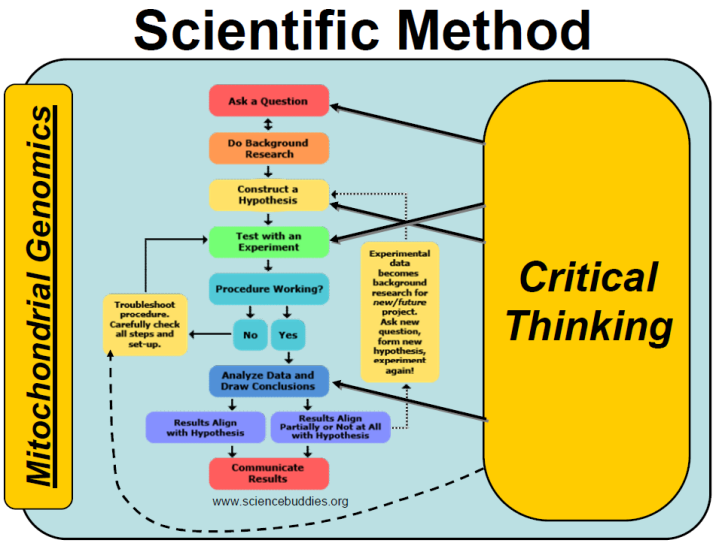

Course Topical Outline

Mitochondria are the energy-transducing organelles of eukaryotic cells in which fuels to drive cellular metabolism are converted into ATP through the process of oxidative phosphorylation. Mitochondria have a double membrane. The outer membrane separates the mitochondrion from the cytosol while the inner membrane is invaginated to form cristae which protrude into and define the matrix of the organelle. The enzyme complexes of the oxidative phosphorylation system are embedded in the mitochondrial inner membrane. In addition to their central role in ATP synthesis mitochondria accommodate central metabolic pathways, like the Krebs cycle and the β-oxidation of fatty acids. They provide cells with a large number of metabolites, such as amino acids and steroids, and are involved in the formation of heme and iron-sulfur clusters.

The question of the origin and subsequent evolution of the mitochondrion has long captivated and challenged biologists. So far, we know that the mitochondrion originated only once, that is, mitochondria in all eukaryotic lineages descend from a common ancestor, the LMCA (last mitochondrial common ancestor). From comparative mitochondrial genomics — through the analysis of genes contained in mtDNA and the protein sequences they specify — we also know that the mitochondrial genome is of (eu)bacterial origin. These sequences point us to members of a particular bacterial phylum, α-proteobacteria (also termed Alphaproteobacteria), as the closest extant free-living relatives of mitochondria, and therefore the bacterial group from within which the mitochondrial genome emerged.

Mitochondria contain their own genome, the mitochondrial DNA (mtDNA), which is located in the mitochondrial matrix. 'Mitochondrial Genomics' is an introductory course to the structure, function, and evolution of animal mitochondrial genomes.

This course has three general topics: (1) *structure*. What is the length and main structural characteristics of animal mitochondria?, How many genes and other elements the mitochondrion genomes code for? What genes are there? (2) *Function*. What is the identity and function of all genes encoded by the mitogenome? (3) *Evolution*, including the exploration of selective pressures in protein coding genes present in animal mitochondrial genomes. In this course, we will explore the structure, function, and evolution of the mitochondrial genome using a set of 'friendly' bioinformatics tools.

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This course will also provide opportunities to participants to improve their critical thinking abilities and information (including digital) literacy.

Clemson Thinks^2

This course is part of the Clemson Thinks^2 (CT^2) critical thinking experiment, a program aimed at improving student critical thinking skills. Simple memorization of facts and repetition of definitions is not a sufficient skill set to address the complex problems our world faces today! **As a Clemson undergraduate, we expect you to develop the ability to think critically and to evaluate how knowledge is constructed and the assumptions underlying such knowledge**.

Critical thinking is reasoned and reflective judgment applied to solving problems or making decisions about what to believe or what to do. Critical thinking gives reasoned consideration to defining and analyzing problems, identifying and evaluating options, inferring likely outcomes and probable consequences, and explaining the reasons, evidence, methods and standards used in making those analyses, inferences and evaluations. Critical thinking is "*skeptical without being cynical, evaluative without being judgmental, and purposefully focused on following reasons and evidence wherever they may lead*". Please, visit https://www.insightassessment.com/FAQ/FAQs-General-Critical-Thinking/What-is-Critical-Thinking for additional information. Also. you can find more information on the CT^2 program at **http://www.clemson.edu/assessment/thinks2**/.

Student Learning Outcomes

- Understand and analyze the structure of animal mitochondrial genomes
- Understand structural and functional annotation of mitochondrial features
- Visualization of protein coding genes, tRNAs, and rDNA.
- Explore and learn online genomic tools
- Understand and estimate selective pressures in protein coding genes
- Infer systematic relationships using protein coding genes present in mt genomes.
- Interpret quantitative relationships in manuscript graphs and tables.
- Explain the limitations of correlational data published in scientific papers.
- Analyze data to identify and summarize problems as part of the scientific method.
- Integrate information/data to solve a problem as part of the scientific method.
- Develop and justify one or more than one hypotheses.
- Identify the limitations of one or more than one hypotheses.
- Identify alternative interpretations of the data or observations.
- Evaluate competing interpretations, explanations, evidence, and conclusions.
- Effectively communicate complex ideas.

Critical Thinking Assessment and In-Class Activities

First, you might be assessed by the CT^2 program through the application of a 'pre-course' test (California Critical Thinking Test) which will assess your initial critical thinking status and a second 'post-course' follow-up test to measure the difference. Dates for taking the pre- or post-course tests will be announced by the instructor during the semester.

Then, throughout the semester, there will be announced home-work as well as in-class activities, artifacts, and reports (see below) during the lecture period worth 1000 points towards your final grade (see below). At least one of these in-class activities include the discussion of a scientific paper. The different activities will be focusing on specific attributes of mitochondrial genomes. **During the activities, you will be exposed to the scientific method and critical thinking**. I will lead the discussion so that you can: i. identify, develop, and/or justify one or more than one hypothesis covered in the activities, ii.. identify the limitations of one or more than one hypothesis proposed in the activities, iii. understand experimental design and its different components to test one or more than one hypothesis, iv. evaluate competing interpretations, explanations, evidence, and conclusions related to the in-silico experiment described in the different activities, and v. identify alternative interpretations of the data or experimental observations. The activity will also allow you to vi. integrate information/data to understand and solve a problem, and vi. effectively communicate complex ideas. Those students absent for the *ICPA* will receive zero points. **You need to participate and respect deadlines to perform well in the course.**

Course prerequisites: None

If the instructor is more than 15 minutes late for lecture without notice, students may leave without penalty.

Should I need to miss class due to illness or travel there will either be a substitute or an e-Learning activity. This would be communicated to you via Canvas.

Important Specific COVID-19 related information:

Due to pandemic circumstances which may impact student attendance (including illness, isolation, and/or quarantine), students will not receive grade penalties for unexcused absences. I will reallocate assessment grades for attendance to other engaged activities.

Lecture Text: NON *Required*

Lecture Grading

Final Lecture Grade: total nº of points earned out of a maximum of 1000 points.
Scale: 900-1000 = A, 800-899.9 = B, 700-799.9 = C, 600-699.9 = D, <600 = Failed

Important Note: Grades will not be rounded up. Thus, the above are hard cutoffs.

Important Note: **You need to bring a white paper to every lecture or be ready to submit a short report online at any point in time during the semester (*word* file)**

Lecture grades will be based on a total of 13 home-works, reports, and artifacts + class participation activities.

The breakdown of points is described below. You will be expected to understand all material presented in lecture, recommended manuscripts, and assigned outside readings.

Important: **please, see *Important Specific COVID-19 related information above.***

Important: **It is mandatory that complete all reports, activities and artifacts if you want to pass the course.**

Grading specifics:
[please, check deadlines below]

R: Literature Review Preliminary: 25
R: Literature Review Final: 50
R: Preliminary Annotation I: 50
R: Preliminary Annotation II: 50
R: Final Annotation: 100
A: Circular Depiction: 75
R: Codon & Nucleotide Usage: 25
A: tRNA exploration & depiction: 100
R: D-loop/CR exploration: 25
R: PCG selection analysis I: 100
A: Video I: 100
R & A: PCG selective pressure analysis II: 100
A: Video 2: 200

[Class participation: 50 pts]
[Evaluation: 50 extra points]
Total points for lecture **1000 pts**
R = report, A = artifact (figures or videos)

Activities: Lecture Reports + Artifacts (including videos)
Throughout the semester, there will be unannounced in-class activities worth 1000 points towards your final grade. These activities may include discussing a paper, providing a written report about a specific analysis, designing a figure focusing on a specific mitochondrial feature, and developing videos explaining your results. Those students failing to provide reports or artifacts during the deadline date will receive zero points.

There will be no opportunity to make up missed reports or artifacts. In the case that a student misses a deadline and has a University- and instructor- approved excuse **in advance**, the student will be excused from that specific activity and scores will be prorated.

Important: **Honor students will develop extra activities during the semester**. **These activities will be discussed with the instructor at the beginning of the semester. Activities include the production of two artifacts: one video and one poster.**

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LECTURE SCHEDULE

IMPORTANT NOTICE: *topics and order are subject to minor / moderate change*

Date		Topics		REPORT / ARTIFACT	
Aug 19 (Wed)		Introduction		Selecting mitochondrial genomes	
		Dr. Maggie Albro short seminar			
Aug 26 (Wed)		Literature Review			
Sep 02 (Wed)		Literature Review & Genome Annotation		R: Literature Review Preliminary	
Sep 09 (Wed)		Mitogenome Annotation & Curation		R: Literature Review Final	
Sep 16 (Wed)		Mitogenome Annotation & Curation		*Students move to Campus*	
Sep 23 (Wed)		Mitogenome Annotation & Curation		R: Preliminary Annotation II	
Sep 30 (Wed)		Mitogenome Circular Depiction		R: Final Annotation	
Oct 07 (Wed)		Mitogenome Circular Depiction			
Oct 14 (Wed)		Codon & Nucleotide Usage		A: Circular Depiction	
Oct 21 (Wed)		tRNA exploration & depiction		R: Codon & Nucleotide Usage	
Oct 28 (Wed)		D-loop/CR exploration & depiction		A: tRNA exploration & depiction	
Nov 04 (Wed)		Instructions: Video in Spark or Rush		R: D-loop/CR exploration	
Nov 11 (Wed)		PCG selective pressure analysis			
Nov 18 (Wed)		PCG selective pressure analysis + VIDEO		R: PCG selection analysis I A: Video I	
Nov 25 (Wed)		Thanksgiving holidays			
Dec 02 (Wed)		Video script & tools		R & A: PCG selective pressure analysis II	
Dec 11 (Wed)		Dec 7, Mon - Dec 11, Fri Examinations		A: Video 2	

Instructor Statement on Attendance Policy

Clemson University undergraduate student attendance policies are available in the undergraduate catalog. This includes sections on attendance policy, enrollment, anticipated absences, unanticipated absences, excused absences, appeals, and auditing. Some of the most pertinent information is copied below.

Important: Any exam that was scheduled at the time of a class cancellation due to inclement weather, University power outage, etc., will be given at the next class meeting unless contacted by the instructor. Any assignments due at the time of a class cancellation due to inclement weather will be due at the next class meeting unless the instructor contacts students. Any extension or postponement of assignments or exams

must be granted by the instructor via email or Canvas within 24 hours of the weather-related cancellation. Important: No penalties for absences due to pandemic. However, students should be aware that *no participation* by 8/25 could result in being dropped from the class as well as for excessive absences. You need to participate in the class!
UPDATED: 08 05 2020

Specific COVID-19 related information:
For a student who reports testing positive or is being asked to quarantine/isolate because of exposure to the virus, it will be up to the student to inform the instructor that they will be moving to online only instruction for at least the next two weeks. Students are directed to use the Notification of Absence module in Canvas to initiate this notification. Additional communication via email is encouraged; students should follow up with their instructor to develop a continued plan of study for each course. Students cannot be penalized in their grade for needing to move to online instruction.
UPDATED: 08 05 2020

Instructor Statement on Accessibility
Clemson University values the diversity of our student body as a strength and a critical component of our dynamic community. Students with disabilities or temporary injuries/conditions may require accommodations due to barriers in the structure of facilities, course design, technology used for curricular purposes, or other campus resources. Students who experience a barrier to full access to a class should let the professor know, and make an appointment to meet with a staff member in Student Accessibility Services as soon as possible. You can make an appointment by calling 864-656-6848 or by emailing studentaccess@lists.clemson.edu. Students who receive Academic Access Letters are strongly encouraged to request, obtain and present these to their professors as early in the semester as possible so that accommodations can be made in a timely manner. It is the student's responsibility to follow this process each semester. You can access further information here: http://www.clemson.edu/campus-life/campusservices/sds/.
UPDATED: 08 05 2020

Safe Campus
Clemson University is committed to providing a safe campus environment for students, faculty, staff, and visitors. As members of the community, we encourage you to take the following actions to be better prepared in case of an emergency:
a. Ensure you are signed up for emergency alerts (https://www.getrave.com/login/clemson),
b. Download the Rave Guardian app to your phone (https://www.clemson.edu/cusafety/cupd/rave-guardian/)
c. Learn what you can do to prepare yourself in the event of an active threat (http://www.clemson.edu/cusafety/EmergencyManagement/)
UPDATED: 08 05 2020

The Clemson University Title IX (Sexual Harassment) statement
Title IX Policy: Clemson University is committed to a policy of equal opportunity for all persons and does not discriminate on the basis of race, color, religion, sex, sexual orientation, gender, pregnancy, national origin, age, disability, veteran's status, genetic information or protected activity (e.g., opposition to prohibited discrimination or participation in any complaint process, etc.) in employment, educational programs and activities, admissions and financial aid. This includes a prohibition against sexual harassment and sexual violence as mandated by Title IX of the Education Amendments of 1972.

The University is committed to combatting sexual harassment and sexual violence. As a result, you should know that University faculty and staff members who work directly with students are required to report any instances of sexual harassment and sexual violence, to the University's Title IX Coordinator. What this means is that as your professor, I am required to report any incidents of sexual harassment, sexual violence or misconduct, stalking, domestic and/or relationship violence that are directly reported to me, or of which I am somehow made aware.

There are two important exceptions to this requirement about which you should be aware:

Confidential Resources and facilitators of sexual awareness programs such as "Take Back the Night and Aspire to be Well" when acting in those capacities, are not required to report incidents of sexual discrimination.

Another important exception to the reporting requirement exists for academic work. Disclosures about sexual harassment, sexual violence, stalking, domestic and/or relationship violence that are shared as part of an academic project, a research project, classroom discussion, or course assignment, are not required to be disclosed to the University's Title IX Coordinator.

This policy is located at http://www.clemson.edu/campus-life/campus-services/access/title-ix/ . Ms. Alesia Smith is the Executive Director for Equity Compliance and the Title IX Coordinator. Her office is located at 223 Holtzendorff Hall, phone number is 864.656.3181, and email address is alesias@clemson.edu.
UPDATED: 08 05 2020

Specific COVID-19 related information for in-person classes:
While on campus, face coverings are required in all buildings and classrooms. Face coverings are also required in outdoor spaces where physical distance cannot be guaranteed. Please be familiar with the additional information on the Healthy Clemson website, such as the use of wipes for inperson classes. If an instructor does not have a face covering or refuses to wear an approved face covering without valid accommodation, students should notify the department chair. If a student does not have a face covering or refuses to wear an approved face covering without valid accommodation, the instructor will ask the student to leave the academic space and may report the student's actions to the Office of Community & Ethical Standards as a violation of the Student Code of Conduct. If the student's actions disrupt the class to the extent that an immediate response is needed, the instructor may call the Clemson University Police Department at 656-2222.
UPDATED: 08 05 2020

Classroom Behavior
Specific COVID-19 related information for in-person classes:
The syllabus information above clarifies to students the expectation for face coverings due to COVID-19 health concerns. The Clemson Office of Community and Ethical Standards maintains expectations for Student Classroom Behavior: https://www.clemson.edu/campus-life/studentconduct/classroom-behavior.html. "Refusal to comply with faculty direction" constitutes a disruption. In the event that a student does not have a face covering or refuses to wear an approved face covering without valid accommodation, the instructor will ask the student to leave the academic space. The class should not begin or continue until the safety of all in attendance can be maintained, to include delaying the start, moving directly to online instruction, or canceling class as a last resort. If the class must be altered because of non-compliance, the student behavior should reported to the Office of Advocacy and Success at 656-0935, who will triage incidents via conduct or CARE. If the case results in a substantive disturbance, the Clemson University Police Department should be called at 656-2222 after a reasonable attempt to continue the class.
UPDATED: 08 15 2020

Classroom Usage and Cleaning Protocol
Specific COVID-19 related information for in-person classes:
Before coming to campus or leaving a residence hall to go to class, all instructors and students should complete the COVID-19 Self-Assessment Tool.
To create a culture of health and safety, faculty are encouraged to address their specific classroom on the first day of class.
Once the instructor from the previous class leaves the classroom, or the room is empty, the instructor may enter and use a disinfecting wipe to clean their instructional area (podium/table and all equipment). When ready, the instructor will let students into the classroom. Instructors should remind students to take only one wipe and to only take a wipe if they need one.
To maintain physical distancing, individuals arriving first to the classroom should occupy the

furthest space. For example, for classrooms with rear entry, the space should fill from the front to the back, and individuals at the back of the space should exit first. For other spaces, faculty should provide students with direction on how to fill the classroom to maintain distance as much as possible.
At the end of class, instructors should again wipe down their instructional area and discard their own disinfecting wipes in the labeled trash receptacles. Any classroom issues should be reported before leaving to the Building Security Coordinator, CCIT (contact information provided at instructor desk/podium), and/or Facilities (656-2186).

Response to a Presumptive Positive or Positive COVID-19 Test:
Instructors and students who are informed that they have a presumptive positive diagnosis or have tested positive for COVID-19 should immediately self-isolate and submit the COVID-19 Positive Test Reporting Form (under development, see University COVID-19 webpage).

Notification of a Positive COVID-19 Test and Related Contact Tracing:
1. Occupational and Environmental Safety and University Facilities will be notified and will determine if any classrooms, common spaces, or offices need to be closed for additional cleaning.
In general, a positive test will not result in the need for additional cleaning beyond the overnight cleaning process and additional cleaning that is done during the day.
If a classroom needs to be closed during the day, signage will be placed on the door and the instructors of classes that are affected by the closure will be informed. It will be up to the instructor to decide if the classes affected by the shutdown will be moved online or cancelled, and to notify students of this decision.
2. For a student who reports testing positive or is being asked to quarantine/isolate because of exposure to the virus, it will be up to the student to inform the instructor that they will be moving to online only instruction for at least the next two weeks. Students are directed to use the Notification of Absence module in Canvas to initiate this notification. Additional communication via email is encouraged; students should follow up with their instructor to develop a continued plan of study for each course. Students cannot be penalized in their grade for needing to move to online instruction. (See Attendance Policy information below.)
3. An instructor who reports testing positive or is being asked to quarantine/isolate because of exposure to the virus should notify their department chair and develop a plan for continuing course instruction. Students should be notified of this plan as soon as possible.
4. For more information, check the Clemson COVID-19 page for Medical Guidance.

For more information on COVID-19 space usage:
1. The University document on COVID-19 classroom usage and cleaning is available on the OTEI website with the Instructional Playbook.
2. The University plan for Space Management Implementation is on the Healthy Clemson website under Faculty and Staff Resources.
UPDATED: 08 15 2020

Last Week of Classes
No examinations, other than laboratory examinations, are permitted on the last two class days (December 5-6, 2020).

Final Examinations
At their own discretion, instructors may excuse from the final examination, all students having the grade A on the coursework prior to the final examination. For all other students, examinations are required in all subjects at the end of each semester, except in courses in which final examinations are not deemed necessary as approved by the department faculty.

Final examinations in Fall 2020 will be delivered in online mode only.
Final assessments are not limited to traditional exam formats, but can take the form of projects, papers, reflections, discussions, presentations, etc. Final examinations must be given (or due) on the dates and at

the times designated in the final examination schedule, except in laboratory and one-credit-hour courses where the final exam will be given at the last class meeting. All courses that do not specify a standard day of the week and meeting time are not assigned a final exam date and time, and the final exam must be given during the examination week at a date and time announced by the instructor. This time must be stipulated in the syllabus at the beginning of the term. Circumventing the designated date/time for a final examination via consenting signatures from students for a different date/time, though freely agreed to, is a violation of the final examination policy. Students are to be given the entire length of the final exam period (2.5 hours) to complete their work, even if the final exam is designed to be completed in less time. This applies to all final examinations with a time limit, including those given online.

University Statement on Academic Integrity

As members of the Clemson University community, we have inherited Thomas Green Clemson's vision of this institution as a "high seminary of learning." Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form. For additional information, see: https://www.clemson.edu/academics/integrity/
UPDATED: 08 05 2020

Attendance Policy

The academic resources of Clemson University are provided for the intellectual growth and development of students. Class attendance is critical to the educational process; therefore, students should attend scheduled courses regularly if they are to attain their academic goals. In the event of an emergency, the student should make direct contact with the course instructor, preferably before a class or an exam takes place. Students should speak with their course instructors regarding any scheduled absence as soon as possible and develop a plan for any make-up work. It is the student's responsibility to secure documentation of emergencies, if required. A student with an excessive number of absences may be withdrawn at the discretion of the course instructor. Course instructors must implement fair grading procedures and provide an opportunity to make up missed assignments and examinations that does not unfairly penalize the student when an excused absence is accepted. Such make-up work shall be at the same level of difficulty with the missed assignment or examination. Course instructors shall hold all students with excused absences to the same standard for making up missed assignments or examinations. While course instructors should seek to make reasonable accommodation for a student involved in University-sponsored activities, students should understand that not every course can accommodate absences and that absences do not lessen the need to meet all course objectives.

Absence from class is detrimental to the learning process, so course instructors may use reasonable academic penalties which reflect the importance of work missed because of unexcused absences. Course instructors who penalize students for unexcused absences must specify attendance requirements as related to grading in the course syllabus and must keep accurate attendance records. Course instructors are obligated to honor exceptions to the university attendance policy for students covered by the Americans with Disabilities Act, as verified through paperwork issued by Student Disability Services.

Notification of Absence

The Notification of Absence module in Canvas allows students to quickly notify instructors (via an email) of an absence from class and provides for the following categories: court attendance, death of family member, illness, illness of family member, injury, military duty, religious observance, scheduled surgery, university function, unscheduled hospitalization, other anticipated absence, or other unanticipated absence. The notification form requires a brief explanation, dates and times. Based on the dates and times indicated, instructors are automatically selected, but students may decide which instructors will receive the notification. This does not serve as an "excuse" from class, and students are encouraged to discuss the absence with their instructors, as the instructor is the only person who can excuse an absence. If a student is unable to report the absence electronically, he/she may call the Office of Advocacy and Success at 864-656-0935 for assistance and guidance.

The Office of Advocacy and Success also assists students in identifying various appropriate methods of documenting absences and assists families in using the electronic Notification of Absence system when students are unable to do so themselves.

Instructor Statement on Missing Class, Lab or Exams

The course lectures are designed and presented in classroom using Microsoft PowerPoint (and/or a later version). I will attempt to make each PowerPoint presentation available to you (as an outline file) the evening or night before a specific lecture topic is covered during class hours. This material will be posted in Canvas. Remember, you need a valid Clemson computer account to access all these materials. The different files I will be posting will be organized by topic. Also, the file names are listed on the lecture schedule above. Ideally, you do need to read the different book chapters before the lectures for optimal understanding and performance during the course. The outline file is useful as a guide during lectures.

Emergency Procedures

Emergency procedures have been posted in all buildings and on all elevators. Students should be reminded to review these procedures for their own safety.
UPDATED: 08 05 2020

Copyright Statement

Materials in courses should be considered to be copyrighted. They are intended for use only by students registered and enrolled in a particular course and only for instructional activities associated with and for the duration of the course. They may not be retained in another medium or disseminated further. They are provided in compliance with the provisions of the Teach Act. Students must seek permission from instructors to record any class activity, including lectures, discussions, and presentations. Students should be reminded to refer to the Use of Copyrighted Materials and "Fair Use Guidelines" policy on the Clemson University website for additional information (link https://clemson.libguides.com/copyright).
UPDATED: 08 05 2020

Election Dates

The 2020 U.S. General Election will be held on November 3, 2020. The deadline for voter registration in South Carolina is October 4, 2020. Students have a choice about where to register to vote. Students attending college may register at their campus address or choose to remain registered or register at their permanent or home address. The nonpartisan Campus Vote Project has compiled information for all students on state-by-state voter registration: https://www.campusvoteproject.org/state-student-votingguides. Faculty and instructors of record may wish to inform students of these deadlines and may wish to incorporate nonpartisan voter education assignments into their courses. The ClemsonVotes coalition will be providing ideas and resources for faculty and instructors via the Clemson Teaching Listserv throughout the semester.
UPDATED: 08 05 2020

General Education Competencies

This course has the ability to satisfy or contribute to the satisfaction of several General Education competencies. This course is designed to satisfy or contribute to the following competencies: 1. Natural Science, 2. Science, Technology, and Society, 3. Communication, 4. Critical Thinking Skills, and 5. Ethical Judgment. Please, consult the Undergraduate Catalog for a complete discussion of the nine competencies.
UPDATED: 08 05 2020

ACCESSING ACADEMIC SUCCESS CENTER (ASC) SERVICES

- Students can access all summer 2020 ASC services, schedules, and learning resources at www.clemson.edu/asc.
- Students needing assistance from ASC staff can call 864-656-6452 or send a message to asc@clemson.edu.

DESCRIPTIONS OF ASC SERVICES

- ASC online services and resources include 1) course support services (Links to an external site.), 2) academic coaching (Links to an external site.), and 3) resources for learning and succeeding in online courses. (Links to an external site.)
    - Course support services (Peer-Assisted Learning (PAL) (Links to an external site.), Tutoring, (Links to an external site.) and LearningLab (Links to an external site.)) focus on creating a supportive learning environment and engaging students in activities designed to promote learning and mastery of course content. All PAL, tutoring and LearningLab sessions are facilitated by a trained peer leader on Zoom or Google Hangouts.
        - Students attending a PAL session can expect to work collaboratively with other students on structured learning activities and practice problems related to material currently being covered in the course. The PAL leader's role is to facilitate the activities and ask open-ended questions that help students collaborate and work out problems or course concepts themselves.
        - Students attending a tutoring session can expect to work on learning activities or practice problems pertaining to the specific content questions the student(s) brought to the session. The tutor's role is to

ask open-ended questions or suggest approaches that help students think through and work out the problems or course concepts themselves.
    - Students attending a LearningLab session can expect to work on self-guided learning worksheets designed to help students reflect on, organize, and structure their study time. The peer learning consultant's role is to provide students with recommendations on effective learning and study strategies.
- Academic Coaching (Links to an external site.)focuses on developing positive and ongoing relationships with students and engaging students in the process of identifying their academic and personal success goals and sharing learning and success strategies students can implement to achieve their goals. All-Academic Coaching sessions are facilitated by a full-time academic coach via Zoom or by phone.

  Students participating in Academic Coaching can expect the academic coach to help them with identifying their goals and areas for growth, discuss success strategies the student can adopt, and provide ongoing support as the student works towards achieving their goals.

- Resources for learning and succeeding in online courses focus on providing supplemental asynchronous content students can access 24/7. Resources include iLearn videos (Links to an external site.) and Resources and Apps for Success in Online Courses.

Wellness Resources

STUDENT HEALTH AND WELLNESS RESOURCES
Student Health Services (https://www.clemson.edu/campus-life/student-health/), locally known as “Redfern” Health, strengthens Clemson University by providing quality medical and mental health care and the health, safety and well-being of the campus community. Student Health Services strives to be an innovative health care system providing integrated quality services that are responsive to the needs of the University community.

Information on who to contact for help in a crisis situation, visit https://www.clemson.edu/campus-life/student-health/contact/index.html (Links to an external site.) and on the emergency/crisis page https://www.clemson.edu/campus-life/healthy-campus/suicideprevention/get-help.html (Links to an external site.) .

CAPS: COUNSELING AND PSYCHOLOGICAL SERVICES
At Counseling and Psychological Services (https://www.clemson.edu/campus-life/student-health/caps/services-and-programs/index.html), you are encouraged to be an active participant in your medical and mental health care. Which service is the right one for you hinges your individual need and CAPS will help you figure that out.

CAPS is committed to educating students, as well as offering “outreach services to faculty and staff members in order to improve the quality of their interactions with students and to promote a healthy work environment.”