January 14, 2022

BIOS3756-A1/A2/A4/A5/A6/A7 Syllabus (tentative)

Physiology Lab

1 Credit Hour

Note this syllabus is subject to change.

Explanation video will be available on Canvas before the first class begins. Students are asked to hold questions until after watching the video and receiving additional explanations during the first class.

Class Date/Time:

Section A1/A5	Wednesday	12:30-3:15 pm
Section A2/A6	Wednesday	3:30-6:15 pm
Section A4/A7	Thursday	3:30-6:15 pm

Class Location: Boggs 1-67 and 1-72 (Make groups of 3 students)
Classroom assignment in the first week (will be adjusted later)
A1/A2/A4: 1-72, A5/A6/A7: 1-67

Modality: In person

What to bring: Mask (non-woven, 3-ply), laptop computer

Instructor Information:

Instructors	**Email**	**Office Hours (Boggs 1-72)**
Prof. Minoru Shinohara, Ph.D. School of Biological Sciences	shinohara@gatech.edu	By appointment
A1/A5 TA:		
Charles Creech (lead)	cjcreech@gatech.edu	Thursday 12-1 pm or by appt.
Melody Moderassi	mmodarressi3@gatech.edu	Tuesday 2-3 pm or by appt.
A2/A6 TA:		
Melody Moderassi (lead)	mmodarressi3@gatech.edu	Tuesday 2-3 pm or by appt.
Henry Chionuma	henry.chionuma@gatech.edu	Friday 11 am-12 or by appt.
A4/A7 TA:		
Henry Chionuma (lead)	henry.chionuma@gatech.edu	Friday 11 am -12 or by appt.
Charles Creech	cjcreech@gatech.edu	Thursday 12-1 pm or by appt.

The first point of contact is the corresponding *lead* TA except for issues requiring immediate assistance of the professor.

All students are welcome to office hours of any TA, including those in other sections.

Description: Students will perform laboratory experiments to explore fundamental physiological concepts and learn basic methods and interpretation of physiological measurements. The focus of the laboratory will be human physiology. Students will explore the functions of the nervous, muscular, cardiovascular, and respiratory systems.

Prerequisites: Human Anatomy. Undergraduate Semester level BIOS3753 Minimum Grade of D

Pre/Corequisites: Human Physiology. BIOS3755

Course Goals and Learning Outcomes

1. To learn basic physiological measurement techniques.
2. To interpret data within the context of known physiological concepts.
3. To organize and present data effectively.

Course Schedule

The class will be in-person unless notified otherwise. The table shows the date, topic, assignment due date, and supplemental reading. Students will be notified in case of a change.

		Wednesday sections (A1/A2/A5/A6)		
Week	**Date**	**Topic**	**Due**	**Supplemental Reading**
1	***1/12***	***No class (TA prep)***		
2	1/19	Introduction/Tutorial		
3	1/26	Electrocardiogram	1/28	Chapter 12, p 370-384
4	2/2	Blood pressure	2/4	Chapter 12, p 388-404
5	2/9	Pulse wave (Report)	**2/20**	Covered in previous readings
6	**2/16**	**Work on Report**	**2/20**	
7	2/23	Spirometry	2/25	Chapter 13, p 443-456
8	3/2	Nerve conduction	3/4	Chapter 6, p 143-158
9	**3/9**	**Mid-term exam**		
10	3/16	Muscle twitch	3/18	Chapter 9, p 267-275
11	***3/23***	***No class (recess)***		
12	3/30	Grip strength	4/1	Chapter 9, p 276-283
13	4/6	EMG in various activities	4/8	Covered in previous readings
14	4/13	Reflexes	4/15	Chapter 10, p 299-306; Chapter 7, p 210-213
15	**4/20**	**Final assessment**		
		Thursday sections (A4/A7)		
Week	**Date**	**Topic**	**Due**	**Supplemental Reading**
1	***1/13***	***No class (TA prep)***		
2	1/20	Introduction/Tutorial		
3	1/27	Electrocardiogram	1/29	Chapter 12, p 370-384
4	2/3	Blood Pressure	2/5	Chapter 12, p 388-404
5	2/10	Pulse wave (Report)	**2/21**	Covered in previous readings
6	**2/17**	**Work on Report**	**2/21**	
7	2/24	Spirometry	2/26	Chapter 13, p 443-456
8	3/3	Nerve conduction	3/5	Chapter 6, p 143-158
9	3/10	**Mid-term exam**		
10	3/17	Muscle twitch	3/19	Chapter 9, p 267-275
11	***3/24***	***No class (recess)***		
12	3/31	Grip strength	4/2	Chapter 9, p 276-283
13	4/7	EMG in various activities	4/9	Covered in previous readings
14	4/14	Reflexes	4/16	Chapter 10, p 299-306; Chapter 7, p 210-213
15	**4/21**	**Final assessment**		

Standard class procedure (tentative)

1. Complete preparation learning any time before attending the class
    a. Watch a lecture video if available (slide file may be available)

   b. Complete supplemental reading
   c. Read lab protocol
2. Attend Lab class during the registered class time
   a. Enter the classroom with a mask (non-woven 3-ply) on and sit at the assigned station
   b. Access Canvas to open lab protocol and download worksheet file
   c. Roll call
   d. Brief explanation about the experiment
   e. Experiment in groups of 3
      i. Prepare experiment
      ii. Collect all data (the person touching a subject wears gloves)
      iii. Analyze data and put results into a worksheet file on your laptop
      iv. Review results (re-collect data, if necessary)
      v. Get approval of data set from TA (re-collect data, if necessary)
      vi. Work on the worksheet problems in a group
      vii. Disinfect the equipment and area
      viii. Leave the classroom
3. Upload worksheet file to Canvas by the due date (mostly in two days. See schedule table).

Mid-term exam
Mid-term exam will be given during the class. Closed book. Multiple choice.

Final assessment
Final assessment will be made during the last class. Closed book. Multiple choice.

Course Requirements & Grading:

Course Grading

1.	Lab Work Sheets	50%
2.	Lab Report	20%
3.	Midterm Exam	15%
4.	Final Assessment	15%
Total		100%

Lab Work Sheets (50% of final grade): 8 Lab Work Sheets will be assigned throughout the semester. The lowest grade will be dropped.

Lab Report (20% of final grade): 1 Lab Report (Pulse wave) will be assigned.

Mid-term Exam (15% of final grade): A mid-term exam will be given to test your mastery of the material over the first half of the semester. The format will be multiple choice. It will assess physiology knowledge as well as your ability to synthesize the material and apply it to novel contexts.

Final Assessment (15% of final grade): A final assessment will be made during the last class. It will include the material that has not been included in the mid-term exam. The format will be multiple choice. It will assess physiology knowledge as well as your ability to synthesize the material and apply it to novel contexts.

Late/Missed Assignments
Assignments (worksheets) and reports are due at 11:59 PM on their respective due dates. These items may be turned in after the deadline, but you will be eligible for fewer points once the deadline has passed: you will only be eligible for 90% of the total grade if it is submitted by 3 AM that night, and you will lose an additional 45% from the total for every 12 hour period it is late thereafter. Final report more than 2 days late will earn a grade of 0. Note that extensions will not generally be permitted, but if you

think you are subject to an exceptional circumstance, please discuss it with me outside of class (and as soon as possible).

Grading Scale
Your final grade will be assigned as a letter grade according to the following scale:
A 90-100%
B 80-89%
C 70-79%
D 60-69%
F 0-59%
Decimal points will be rounded.

According to policy, grades at Georgia Tech are interpreted as follows:
A Excellent (4 quality points per credit hour)
B Good (3 quality points per credit hour)
C Satisfactory (2 quality points per credit hour)
D Passing (1 quality point per credit hour)
F Failure (0 quality points per credit hour)

See https://registrar.gatech.edu/info/grading-system for more information about the grading system at Georgia Tech.

Extra Credit Opportunities
N/A

Course Materials:

Required materials: Short lectures and associated slide files will be posted on Canvas
Laboratory Protocols will be posted on Canvas
Completed worksheet to be uploaded to Canvas by the due date.

Supplemental Text: Vander's Human Physiology, 15th Edition
2016: McGraw-Hill Education, ISBN 978-1-259-29409-9

Course Website and Other Classroom Management Tools

We plan to use the following services.
Canvas: https://canvas.gatech.edu

Additional announcements, assignments, and resources will be posted to the course website on Canvas.

Additional Materials/Resources

Additional materials may be provided as needed.
Suggested reading: Ted Baumgartner, Larry Hensley. Conducting and Reading Research in Kinesiology. 5th Edition, McGraw-Hill, 2012 (or previous editions)

More Support for Course Texts and Materials:
Contact the TA or instructor if more support is needed.

Course Expectations & Guidelines:

Attendance and Participation
Class participation is a very important part of the learning process in this Lab course. You are expected to attend and actively engage in the class sessions unless you have a compelling reason not to do so.

This is a fast-paced and intensive course. Missing any class will put you at a serious disadvantage to complete the course requirements. If you are absent from class, you are still responsible for the work assigned for that day, as well as any information given out that day. For example, a missed quiz due to unexcused absence will result in a grade of zero. We encourage you to participate in class. If you have a question, the chances are good that someone else is wondering the same thing.

In case of absence due to COVID or other sickness, notify the TA and professor. If the student is capable, remote participation in the lab may be offered depending on the situation.

Note: Make-up laboratories will be considered only in the case of an emergency (documentation required) or if prior arrangements have been made. Laboratories are extremely difficult to make up, do not miss them! In the case of an emergency, you must contact the instructor within 24 hours and provide documentation of the emergency. If you know you will miss a class because of a school sponsored event or important personal issue, you must contact the instructor at least 1 week prior in order to make necessary arrangements to complete the missed work.

Laboratory Safety
All students are required to sign a lab safety agreement before performing any laboratory experiments.

Suggestions for getting the most from this course

1. *You will need to read the laboratory protocol and any assigned reading prior to the laboratory class.*
2. *Participate in conducting the experiments. You will be working with a lab partner. Do not allow your partner to do all the work!*
3. *Based on your knowledge of physiology, try to guess the outcome of the experiment prior to performing it (form a hypothesis). If the outcome is different from what you expected, try to form an alternative hypothesis.*

Laboratory protocols will be posted on CANVAS.
It is the student's responsibility to read them ahead of time.

Academic Integrity and Collaboration
Cheating, plagiarism, and all forms of academic dishonesty are expressly forbidden in this class, and by the university's Honor Code (https://osi.gatech.edu/content/honor-code). Any form of cheating will immediately earn you a failing grade for the entire course, and I will pursue further disciplinary actions according to Georgia Tech's policies and procedures.

Any student suspected of cheating or plagiarizing on a quiz, assessment, or assignment will automatically be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for any violations uncovered.

As a reminder, we consider the following behaviors to be cheating:

**using false excuse to delay completing a laboratory/test*
**learning what is on a test from someone who has already taken it*
**copying from another student on a test with or without their knowledge*
**helping someone else cheat on a test/lab report*
**using unauthorized notes on a test*
**using unauthorized electronic device to obtain information during test*

**working with others on an assignment when asked for individual work*
**paraphrasing/copying from written or internet source without referencing it*
**fabricating/falsifying a bibliography*
**turning in work copied from/done by another*
**obtaining paper from term paper mill*
**fabricating or falsifying research data*

List adapted from McCabe, Donald. "Cheating among college and university students: a North American Perspective," International Journal for Educational Integrity, 1.1 (2005).

Collaboration & Group Work

Collection and data reduction will be performed as a group work. Further analysis and interpretation of data can be discussed in a group but performed as an individual. We expect all students to adhere to the university's Honor Code. Your work on all reports and assessments must be your own.

Campus Resources

You are permitted (and even encouraged) to make use of the academic support services offered by The Center for Academic Success (https://www.success.gatech.edu/) and the Communication Center (https://www.communicationcenter.gatech.edu/).

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404)894-2563 or https://disabilityservices.gatech.edu/, as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Extensions, Late Assignments, & Re-Scheduled/Missed Assessments

Final assessments may be rescheduled for pre-approved excused absences (sick with doctor's note, car accident in route to test, hospitalization, death in your immediate family). You should not assume that an absence is automatically excused. Please contact us as soon as possible to ensure that the absence will be excused. **You must provide proof in writing for any absence to be considered as excused.**

Student-Faculty Expectations Agreement

In order to create a mutually respectful classroom environment, I abide by the principles for student-faculty expectations laid out by Georgia Tech. This means that I will:

- create a positive, engaged academic environment;
- be available to meet with you outside of class at a mutually convenient time;
- provide you with all necessary materials so that you can complete all course assignments.

In turn, I expect that you too will fulfill your responsibilities. Specifically, I expect that:

- you will work with me to create a respectful, engaged academic environment;
- you will attend classes regularly and on time;
- you will attend presentations unless you have an emergency or formal, pre-approved excused absence;
- you will come to class prepared, having read the required material, and ready to engage in class discussions;
- you will adhere to the principles of Georgia Tech Student Honor Code.

You can review exactly what Georgia Tech's student-faculty expectations are at:
https://catalog.gatech.edu/rules/22/

Digital Etiquette: You are expected to turn on your camera and microphone available when attending the remote class unless instructed otherwise.

Student Use of Mobile Devices in the Classroom

Students are required to bring and use a lap-top computer to record the analyzed data in the classroom. Laptops and mobile devices will be allowed for class-related activity if the sound is turned off. Please do not abuse this privilege by checking email, Facebook, YouTube, web surfing, etc. during class. If this becomes a distraction in class, the right to deny this privilege to an individual or the entire class can be taken away at the discretion of the instructor(s).

As research on learning shows, unexpected noises and movement automatically divert and capture people's attention, which means you are affecting everyone's learning experience if your cell phone, pager, laptop, etc. makes noise or is visually distracting during class. The use of cell phones to make phone calls is not permitted during class time.

Additional Course Policies:

Institute-Approved Absences
As per Georgia Tech policy, you are permitted to be absent from class to participate in athletic events, official field trips, and religious observances. For planning purposes, please provide us with **written notice of your upcoming absence at least two weeks before the event, and ideally within the first two weeks of class**. When we receive this notice, we will discuss opportunities with you to make up any missed work in your absence. Please see https://catalog.gatech.edu/rules/4/ for more information about receiving official notice from the Registrar about the nature and timing of your upcoming Institute-approved absence.

Food and Drink
Food and drink of any kind, including chewing gum, are prohibited inside the lab. Secure water bottles in backpacks or purses before entering the room.

Freedom of Expression and Guidelines for Discussion
We respect your right to freedom of speech and peaceful assembly. We are also committed to maintaining an orderly learning environment for all students and ensuring that all facilities are used in a way that facilitates teaching, learning, and research. Therefore, we encourage you to voice your opinions respectfully, as long as they are related to the content of this class and as long as doing so does not infringe unduly on the rights of others.

Re-grading and Re-submission
We try to be fair in our grading and generally try to give as much partial credit as possible. As such, please consider carefully any requests you have for regrading other than obvious errors in calculating your grade. Requests for regrading of a homework assignment, quiz or exam may be submitted in writing via email to Dr. Shinohara within one week of the day the grades are given back to the class (regardless of whether or not you attend class that day). You must justify in writing the technical basis for the regrade. If the regrading request is accepted, your entire homework or assessment may be regraded. Note that your grade may potentially decrease upon regrading, and you should not assume that your grade will always go up after regrading.

Statement of Intent for Inclusivity
As a member of the Georgia Tech community, we are committed to creating a learning environment in which all of our students feel safe and included. Because we are individuals with varying needs, we rely on your feedback to achieve this goal. To that end, we invite you to enter into dialogue with us about the

things we can stop, start, and continue doing to make our classroom an environment in which you feel safe to participate in learning.

COVID-19 Related Issues:

The following information relates to specific services and guidelines for courses during this semester. The most up-to-date information on Covid-19 is on the TECH Moving Forward website and in the Academic Restart Frequently Asked Questions.

Expectations and Guidelines

This is an unprecedented time. We all agree that the best way for you to learn is face-to-face. If we are required to move to an online format because of a COVID outbreak, we are able to help you learn the course content remotely. Whether we meet in-person versus remotely could change depending upon health status of individuals in classroom. You have a definite stake in your personal health and the community's health.

Our expectation is that everyone who is eligible will be vaccinated; vaccination significantly reduces likelihood of severe disease. Because COVID can be spread by vaccinated individuals, we also expect that **everyone should wear a non-woven 3 ply mask**, correctly covering mouth and nose, when indoors. Surgical masks are available for students who do not bring an appropriate mask.

Weekly asymptomatic surveillance testing should be part of everyone's regular routine, regardless of vaccination status. Details are here: https://health.gatech.edu/coronavirus/testing.

Student Illness or Exposure to Covid-19

During the semester, you may be required to quarantine or self-isolate to avoid the risk of infection to others. Quarantine is the separation of those who have been exposed to someone with Covid-19 but who are not ill; isolation is the separation of those who have tested positive for Covid-19 or been diagnosed with Covid-19 by symptoms.

If you have not tested positive but are ill or have been exposed to someone who is ill, please follow the Covid-19 Exposure Decision Tree for reporting your illness.

During the quarantine or isolation period you may feel completely well, ill but able to work as usual, or too ill to work until you recover.

When in isolation or quarantine you will be unable to attend in-person course sessions but your instructor may require you either to participate in the course remotely, complete some complementary work that parallels what you are missing in class, or make up some class work when you return.

If you are ill and unable to do course work this will be treated similarly to any student illness. The Dean of Students will have been contacted when you report your positive test or are told that it is necessary to quarantine and will notify your instructor that you may be unable to attend class events or finish your work as the result of a health issue. Your instructor will not be told the reason. We have asked all faculty to be lenient and understanding when setting work deadlines or expecting students to finish work, and so you should be able to catch up with any work that you miss while in quarantine or isolation. Your instructor may make available any video recordings of classes or slides that have been used while you are absent, and may prepare some

complementary asynchronous assignments that compensate for your inability to participate in class sessions. Ask your instructor for the details.

CARE Center, Counseling Center, Stamps Health Services, and the Student Center
These uncertain times can be difficult, and many students may need help in dealing with stress and mental health. The **CARE Center** and the **Counseling Center**, and **Stamps Health Services** will offer both in-person and virtual appointments. Face-to-face appointments will require wearing a face covering and social distancing, with exceptions for medical examinations. Student Center services and operations are available on the **Student Center** website. For more information on these and other student services, contact the Vice President and Dean of Students or the **Division of Student Life**.

Accommodations for Students at Higher Risk for Severe Illness with Covid-19
Students may request an accommodation through the Office of Disability Services (ODS) due to 1) presence of a condition as defined by the Americans with Disabilities Act (ADA), or 2) identification as an individual of higher risk for Covid-19, as defined by the Centers for Disease Control (CDC). Registering with ODS is a 3-step process that includes completing an application, uploading documentation related to the accommodation request, and scheduling an appointment for an "intake meeting" (either in person or via phone or video conference) with a disability coordinator.

If you have been approved by ODS for an accommodation, I will work closely with you to understand your needs and make a good faith effort to investigate whether or not requested accommodations are possible for this course. If the accommodation request results in a fundamental alteration of the stated learning outcome of this course, ODS, academic advisors, and the school offering the course will work with you to find a suitable alternative that as far as possible preserves your progress toward graduation.

Instructor Illness or Exposure to Covid-19
During the spring 2022 semester, some faculty members may be required to quarantine due to exposure or isolate due to a Covid-19 diagnosis. Some disruption to classes or services is inevitable, but Georgia Tech is making every effort to ensure continuity of operations. As is the case in any semester, faculty may cancel a class if they have an illness or emergency situation and cover any missed material at their own discretion. If an instructor needs to cancel a class, they will notify students as early as possible.

Faculty who are staying home due to symptoms should monitor their health closely and consult with their school chair to determine if remote instruction or substitute instruction is most appropriate for the course. If they need to cancel a class repeatedly, a backup will be supplied in the form of a temporary substitute instructor or asynchronous work. No course will be canceled after the first class has occurred.