BME 4863 – A/A01 and B/B01 - Special Topics – Spring 2027

Dr. Wilbur Lam – wilbur.lam@emory.edu
Dr. Elaissa Hardy – elaissa.hardy@emory.edu

Lecture - Mondays 9:30-10:20am
Lab – Tuesdays 3:30-6:15pm
TA – Adam Edens
Mentors for Lab – TBD

Notes
Previous semesters the class was 4843. 4843 = 4863.
All times are listed in EST.
Office hours – By appointment and through Zoom.

Course Learning Outcomes – This class will follow the model of PBL, where you will be creating interactive tactile learning modules for k-12 science and math education in the context of human physiology. The environment will either be in the hospital or in the school setting. This semester we will be focusing on Human Body Systems. The activities need to be hands-on, simple, and completed with the student in ~10minutes, but they can have add-on components. Prioritize creating 3D activities as opposed to 2D.
The class will provide ample opportunities to get out into the community to teach STEM and work with children.

A/A01 - Junior Members – First semester in the BME HealthReach course.
B/B01 - Senior Members - returning member of the program in 2nd+ semester of the course.
This language will be referenced throughout this syllabus and semester for clarified communication purposes.

Course Documents – We will be using Canvas and google drive – bmehealthreach@gmail.com Please send an email (non @gatech.edu) to that account for drive folder access.

Grading –

	Maximum point value
Weekly Journal Assignments (14 total, 10pts each)	140pts
Complex topic presentations	20pts
Activity 1	20pts
Activity 2	20pts
Activity 3	20pts
Activity 4	100pts (50pts for proposal, 50pts for final presentation)
Final Report	100pts
Volunteering Event Points	36pts = 100pts
	35-33pts = 90pts
	32-29pts = 80pts
	28-25pts = 70pts
	24-21pts = 60pts
	20pts = 40pts
	<19 = 10pts

Grading Scale: (no rounding up) – max total pts is 540

A: 100-90%**; B:** 89 – 80%**; C:** 79-70%**; D:** 69-60%; **F** < 60%

The course schedule is subject to change due to unforeseen events – COVID cancellations, school closing snow storms or bridge collapses. Points will be adjusted as necessary in favor of the student.

COVID-19 Statement: We volunteer with K-12 children, some who are medically fragile.

Per USG and GT's guidance for Fall 2022, COVID-19 vaccines and masks are not required for events at Georgia Tech, they are highly recommended.
Events held at Georgia Tech's campus will follow Georgia Tech's COVID-19 guidance.
Events held off Georgia Tech's campus will follow the event's guidance. This might include wearing a mask indoors or outdoors and if volunteering at the hospital, a COVID-19 vaccine.
Ample notice will be given of the event's policy.
Reach out to Dr. Hardy before August 28, 2026 with any questions or concerns.
All classes are currently in-person, but may have to be switched to virtual if needed.

<u>Volunteering Events</u> – These dates are from Spring 2026 – Spring 2027 dates will be confirmed in late December 2027
We will be using a google excel sheet to sign up for events -
Below our confirmed events. Other events may be added throughout the semester.
Some events require volunteer training – training links can be found on the google excel sheet.
KIDS Club forms must be completed by Friday, January 16th
Training for Fulton County must be completed by Tuesday, January 20th

- Ronald McDonald House AMBH – STEM events – Mondays 6:30-8pm (2.5 pts each)
  - January 26th
  - February 2nd and 16th
  - March 2nd and 16th
  - April 6th and 20th
- Ronald McDonald House Peachtree Dunwoody Scottish Rite – STEM events – Thursdays 7-8pm (2 pts each)
  - January 22nd and 29th
  - February 5th and 19th
  - March 5th and 12th
  - April 9th and 23rd
- GT Kids Club, Saturdays at GT, ~8:30-12pm (3.5pts)
  - January 17th – Blood Flow focused lead by Seniors
  - February 28th – Digestion focused lead by Seniors
  - March 14th - Opportunity for YOU to create the lesson and teach it – FOCUS on PI – can earn more points.
  - April 25th – Sound focus lead by Seniors
- Family STEM Nights
  - February 5th: Sagamore Hills Elementary School ~5pm – 8pm (4pts) – brain shower caps
  - February 10th : Morningside Elementary School ~6-8pm (3pts) – K-2nd – brain shower cap
  - February 12th : Morningside Elementary School ~6-8pm (3pts) – 3-5th – blood types
  - February 26th: Ocee Elementary School (5pts) – paper red blood cells
- East Cobb Middle School Career Day – February 13th (time and points TBD)
- Scottish Rite STEM parties in The Zone, Fridays at 1-3pm (2.5pts each)
  - January 30th
  - February 13th – Make signs for Lights of Love event on Feb 14th
  - March 13th
  - April 10th
- AMBH STEM parties in The Zone – Fridays at 1-3pm (2.5pts each)
  - January 23rd – new time 3-5pm
  - February 6th
  - March 6th
  - April 3rd
- Woodland Elementary **4th grade class – Wednesdays** (1.5pts/hr or 5pts if you stay all day)
  - Session 1A and 1B – January 21st – 9:20am – 10:05am (arrive by 9:05am) and 11:20am – 12pm (arrive by 11am)

    - Session 2A and2 B – February 18th – 9:20am – 10:05am (arrive by 9:05am) and 11:20am – 12pm (arrive by 11am)
    - Session 3A and 3B – March 4th - – 9:20am – 10:05am (arrive by 9:05am) and 11:20am – 12pm (arrive by 11am)
- Woodland Elementary **5th grade class – Fridays** (1.5pts/session or 4pts if you stay all day)
    - Session 1A and 1B – January 23rd – 9:20am – 10:05am (arrive by 9:05am) and 10:10 – 11am.
    - Session 2A and 2B – February 27th - 9:20am – 10:05am (arrive by 9:05am) and 10:10 – 11am.
    - Session 3A and 3B – March 6th - 9:20am – 10:05am (arrive by 9:05am) and 10:10 – 11am.
- Atlanta Science Festival EXPO – Saturday, March 21st at Piedmont Park 10am – 5pm (lots of points. 1.5pts/1hr attendance)

- **0.25pts per event for carpool driving, 0.5pts round trip**
- **0.5pts per event for being the Event Coordinator**
- **Virtual Tutoring – 1hr = 1point**
- Training (CITI, background, etc) as required by our partners can be counted towards volunteer points if it is longer than 30minutes. 1hr = 1point
- Additional point opportunities will pop-up throughout the semester – ex. follow on social media, submit pictures for social media, assist Dr. Hardy, find and apply to a funding source for supply money, etc.
- Event supply prep as needed

* **Minimum** Events points requirements* –
During September, October, and November you must attend at least **3** volunteering events each month. This is to help distribute your volunteering throughout the semester and provide reliable coverage at all events.

Each Monday, an announcement will be posted with events for the week and each event's current sign-up. Event Coordinators will contact your separately at least 48hrs before the event. We understand schedules change, please follow the below actions if you need to cancel your attendance.

Event Coordinator –
On the sign-up excel, there is listed a HealthReach member who is the main contact for the event (Event Coordinator), this person/people will work with Dr. Hardy on arranging the supplies needed for the event. They will be in contact with everyone attending the event with specific details and will help arrange carpool. In some cases, they may be tasked with creating content for the event, additional points will be awarded as necessary.
By sign-in up to be an Event Coordinator, you are expected to attend the event from start to finish – no leaving early.
Event Coordinators maybe Juniors, but priority is given to Senior members of HealthReach.
At least 48-hrs before an event, the Event Coordinator needs to contact everyone listed to attend the event with activity details and carpool information.

Event Check-in –
You must check-in with the Event Coordinator at each event. (The Event Coordinator is listed on the sign-up excel sheet; they are a current a HealthReach member) The Event Coordinator will report your attendance. See below for "no show."

Event Cancellation –
- If you need to cancel after the Monday update, please do so on the sign-up excel sheet.
- If it is within **48hrs of the event**, email the Event Coordinator of your change in plans.
- If you need cancel **within 24hrs of the event:**
    - It is your responsibility to:
        - Contact the Event Coordinator, updating your status
        - Contact the alternatives and see if they can attend the event (this is for smaller events)
        - Do not "no show"
        - Need to make-up 1pt, as well as the pts for the event

- **If you "no show" to an event or the Event Coordinator has no record of your attendance, you need to make-up 2pts and the pts for the event.**
- For illness cancellations –
    - Contact the alternatives and see if they can attend the event
    - Contact the Event Coordinator, updating your status and the alternatives
    - Email Dr. Hardy with documentation of illness.
    - If these steps are done, then you will NOT need to make-up the missed pts.
    - If these steps are not done, then you will NEED to make-up the missed pts.

Event Dress Code –
Business casual while looking professional. Remember you are working with children and representing Georgia Tech. Wear closed toed shoes, professional pants, professional top (BME t-shirt or nice GT shirt are fine.) **No low-cut or crop tops, no holes in pants, no wearing jeans, no athletic wear (yoga pants or sweat pants).**

Attendance –
It is important to attend class and the lab sessions are your work sessions. Attendance will be taken and used to determine future semester hospital assignments.

Assignments –
All assignments are due on Canvas.
Save all files with your name
- Ex. Elaissa_Hardy_Final_Report_Fall2026.doc
- Files without your name in them will not be accepted and you will receive zero credit.

Journal Assignments – **Each Monday at 9am there will be a new assignment posted on Canvas to be completed in your Journal by that Saturday at 7pm**. The assignment will include questions to answer, readings, quizzes, etc. as well as weekly updates on your volunteering, disease notes, and general thoughts (see below). It should only be about 1 hrs of work each week. Each weekly assignment is worth 10pts. **Late assignments will not be accepted, and you will receive 0pts**. There will be 14 Journal assignments with the first one due Saturday, August 28th and last one due December 5th.

This is a living document and should have all your notes, design ideas, and comments. Please order the notes newest to oldest.

Example of some of the journal assignments you will see this semester -
- All activities will follow the Georgia Standards for Excellence (GSE) for Math k-8th and Science k-8th, and 9-12 Biology, Chemistry, Physical Science, and Physics.
  https://www.georgiastandards.org/Georgia-Standards/Pages/default.aspx
  A summary of the standards is on the Drive and it is your responsibility to read them.
  You will be given a list of questions to answer with short answers using the GSE standards provided on the drive. Questions are based on k-8th science and math. Excluded are the "Accelerated GSE 6/7A" and "Accelerated GSE 7B/8" math standards. Each of your activities created later in the semester will need to be rooted in the standards.
- Reading – during the semester there will be assigned reading, reflection questions, and discussions during lecture. All the reading will be posted at the beginning of the semester, if you would like to start now
- Complete your VARK assessment and comment on it
- Volunteer experiences – summarize where, what, who, how long, and anything notable that you did during the volunteer event, what you would like to do differently at the next event. You should have entries for every event you attend.
- Activity Notes – general information about the disease we are focusing on this semester, ideas and information that will help you with activity creation - basic information about the human body and Sickle Cell Disease. Questions you want to explore throughout the semester – make a vocabulary list, define the vocab list with

simple terms that a non-BME major would understand, make diagrams, think about how the functionality relates to math, science, and physics.

Activities – You will create 4 activities this semester in groups. Each activity will have a grading rubric – read all the instructions. Activity 4 will need to include a 2 page document, single spaced, 12 point font – 1page of instructions, 1 page of an answer key – and must include both written and visual aids. See examples on Canvas. Highlighted on the 2 pages are the activity objectives, GSE, and evaluation questions to verify that the student has learned the targeted skill. You will present your activity, including a demo/roll-play, the standards, how those standards are addressed, supply source list and breakdown, and the take-away point of the activity.

Activity Customer Feedback – Detailed information will be included in each activity grading rubric. Customer feedback can include testing your activities with friends, siblings, at pop-up events, etc., it can be in-person or virtual – get off of GT-Island! The goal is to get feedback on your activity and make adjustments.

Activity 1 – documents due Tuesday, September 15th at 3pm, presentations that day.
Activity 2 – documents due Tuesday, October 6th at 3pm, presentations that day.
This activity will be reworking an Activity from Spring/Fall 2025.
Activity 3 – documents due Tuesday, October 27th at 3pm, presentations that day.
This activity is more focused on brainstorming using specific parameters, not required to create a finalized activity.
Activity 4 – documents due Tuesday, December 1st at 3pm, presentations that day.
This will be choose your own adventure activity, but use Activity 3 as your jumping off point – lots of space to be creative.

Complex Topics – this will be done throughout the semester. You will be assigned a complex topic and will need to create a written explanation for scientific and simple audiences, and give an oral presentation of your simple explanation in class.
Monday, September 7th - Your topic will be assigned
Tuesday, September 8th - you will have 2 minutes to present your topic however you want! **– this is ungraded** – it is an opportunity to get out of your comfort zone and work on communication skills.
Saturday, September 12th - Your scientific written portion and self-reflection on your ungraded presentation is due in your journal (more details posted in the journal assignment)
Lecture on Monday, October 12th– How to teach a complex topic
Saturday, November 7th Your simple written explanation is due in your journal (more details will be posted in the journal assignment)
November 16th/17th - graded oral presentation of your simple explanation (2min time limit)
Optional Dry Run during any Tuesday lab – highly recommend this!

Additional information from the Georgia Tech and the BME department –

- **Mental Health Care & Resources** – The Center for Mental Health Care and Resources (CMHCR) is the best place to engage with mental health care at GT. They are found in the Smithgall Student Services Building and can also be reached at **404-894-2575**. Their normal hours of operation are 8am to 5pm Monday through Friday. CMHCR can connect you with services including individual or group counseling, academic or personal support services, assessment and testing for learning disabilities, and other mental health providers. They can help you find the right resources for a crisis, an acute issue, or a longer-term concern.
- **BME Satellite Counselor** – In addition to the Center for Mental Health Care's centralized services, BME hosts a counselor, Kate Silverio, in Room 1105 of the Whitaker Building (in the back of the academic office). The Satellite Counselor offers 15 min appointments (in-person or virtual) during which students can discuss a brief or specific, non-emergency concern, and/or learn about mental health resources on campus. To schedule with the Satellite Counselor, please email her (**kate.silverio@studentlife.gatech.edu**).
- **Crisis Services -** If you require immediate support for mental health difficulties you have several options: During business hours (8 a.m.-5 p.m.). Call **404-894-2575** or go to Suite 238 in the Smithgall Student Services

Building. Outside of business hours, call **404-894-2575** and select the option for the after-hours counselor. In an emergency, call Georgia Tech Campus Police at **404-894-2500** on campus or **911**.

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review Georgia Tech's Honor Code and the student Code of Conduct. Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services (404-894-2563) 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.

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. The Student-Faculty Expectations articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class and while volunteering.

Collaboration, Group Work, and Use of Generative AI

You are allowed to work in groups on all homework and out-of-class assignments, but any work you turn in must be written in your own hand.

Extensions & Late Assignments

Late homework will be penalized accordingly.

Schedule and Assignments –

January 12th – Lecture **-** Introduction to BME HealthReach
January 13th – Lab – Ice Breakers and what is an electromagnetic – 5th grade explanation

January 19th – NO CLASS
January 20th – Lab – Intro to complex topics and your 1st time presenting your topic however you want! This is ungraded, an opportunity for constructive feedback – 2min limit

January 26th – Lecture - Introduction to Teaching and Sickle Cell Disease (SCD)
January 27th – Lab – Activity 1 assigned – Origami: as a group, pick a fold, teach the class that fold at the next lab class!

February 3rd – Lecture – Design process – part 1 and SCD questions
February 4th - Lab – Activity 1 Origami Presentations

February 9th - Lecture - Design process – part 2 – LEGOs!
February 10th – Lab -Class is optional, so you can attend MES Family STEM night. Activity 2 assigned, due February 24th

February 16th - Lecture – Child Life and Child Development
February 17th – Lab - workday for Activity 2

February 23rd - Lecture – History of HealthReach and hospital teacher slides
February 24th - Lab – Activity 2 presentations. All documentation is due on the Drive by 3pm.

March 2nd - Lecture – How to teach a complex topic in a simple manner. You will present (2min time limit) your simple explanation on Monday/Tuesday, April 13th/14th
March 3rd – Lab - Activity 3 assigned, presentations March 17th.

March 9th - Lecture – Fall 2026 plans introduction and workday for Activity 3
March 10th – Lab - Activity 3 workday

March 16th - Lecture - Child Life/Development in books - discussion
March 17th – Lab - Activity 3 presentations. All documentation is due on the Drive by 3pm.

March 23 – 27th – NO CLASS – Happy Spring Break! No Journal due

March 30th – Lecture -
March 31st - Lab – Activity 4 assigned, presentations April 20/21st.

April 6th – Lecture – Fall 2026 plans cont…
April 7th – Lab – Activity 4 workday

April 13th – Lecture – Complex topic presentations
April 14th – Lab – Complex topic presentations cont. and Activity 4 workday

April 20th – Lecture – Activity 4 Final presentation- all documents due on Drive by 9am. No edits allowed
April 21st – Lab – Activity 4 Final presentations continued.

April 27th – Lecture – last class - Semester in review, Fall 2026 plans finalized
April 28th - NO CLASS! Good luck with finals!

May 4th - Final reports due on Canvas by 12pm (noon). Rubric will be posted around Spring Break.

Spring 2026 - Event Calendar -

January

Saturday 17th – GT KIDS club on campus 8:30-12pm
Wednesday 21st - Woodland Elementary School – 4th graders 9:20 – 10:05am and 11:20am – 12pm
Thursday 22nd – RMDH at Scottish Rite 7-8pm
Friday 23rd - STEM party at AMBH **3:30-5pm (arrive by 3pm)**
Woodland Elementary School – 5th graders 9:20 – 10:05am and 10:10 – 11am
Monday 26th – RMDH at AMBH (new location) 6:30-8pm
Thursday 29th – RMDH at Scottish Rite 7-8pm
Friday 30th - STEM party at Scottish Rite **1:30-3pm (arrive by 1pm)**

February

Monday 2nd – RMDH at AMBH (new location) 6:30-8pm
Thursday 5th – RMDH at Scottish Rite 7-8pm
Family STEM Night - Sagamore Hills Elementary School ~5pm -8pm
Friday 6th - STEM party at AMBH 1:30-3pm (arrive by 1pm)
Tuesday 10th – Morningside ES Family STEM night (K-2nd) 6-8pm
Thursday 12th – Morningside ES Family STEM night (K-2nd) 6-8pm
Friday 13th – East Cobb Middle School Career Fair (times tbd)
STEM party at Scottish Rite 1:30-3pm (arrive by 1pm)
Saturday 14th - Lights of Love at Children's 3 campuses (~5:30pm – 8pm)
Monday 16th – RMDH at AMBH (new location) 6:30-8pm
Wednesday 18th - Woodland Elementary School – 4th graders 9:20 – 10:05am and 11:20am – 12pm
Thursday 19th – RMDH at Scottish Rite 7-8pm
Thursday 26th – Family STEM Night - Ocee Elementary School ~5pm-8pm.
Friday 27th - Woodland Elementary School – 5th graders 9:20 – 10:05am and 10:10 – 11am
Saturday 28th – GT KIDS club on campus 8:30-12pm

March

Monday 2nd – RMDH at AMBH (new location) 6:30-8pm
Wednesday 4th - Woodland Elementary School – 4th graders 9:20 – 10:05am and 11:20am – 12pm
Thursday 5th – RMDH at Scottish Rite 7-8pm
Friday 6th - STEM party at AMBH 1:30-3pm (arrive by 1pm)
Woodland Elementary School – 5th graders 9:20 – 10:05am and 10:10 – 11am
Thursday 12th – RMDH at Scottish Rite 7-8pm
Friday 13th - STEM party at Scottish Rite 1:30-3pm (arrive by 1pm)
Saturday 14th - GT KIDS club on campus 8:30-12pm
Monday 16th – RMDH at AMBH (new location) 6:30-8pm
Saturday 21st – Atlanta Science Festival EXPO at Piedmont Park – 9am – 5pm

April

Friday 3rd - STEM party at AMBH 1:30-3pm (arrive by 1pm)
Monday 6th – RMDH at AMBH (new location) 6:30-8pm
Thursday 9th – RMDH at Scottish Rite 7-8pm
Friday 10th - STEM party at Scottish Rite 1:30-3pm (arrive by 1pm)
Monday 20th – RMDH at AMBH (new location) 6:30-8pm
Thursday 23rd– RMDH at Scottish Rite 7-8pm
Saturday 25th – GT KIDS club on campus 8:30-12pm