

[Send To Printer](#) | [Close Window](#)**PHYL 142L Fall 2023 Syllabus**

UNIVERSITY of HAWAII¹
WINDWARD
 COMMUNITY COLLEGE

PHYL 142L SYLLABUS**Fall 2023****Aug 21-Dec 15, 2023****PHYL 142L SECTION:****61163 M 8:30-11:15 Imiloa 103****Instructor:** Michelle Smith**Office:** Imiloa 112B**Online Office Hours:** Email for apt and meet at <https://meet.google.com/efn-pvsv-exj>**Email:** mliefsk@hawaii.edu**WINDWARD COMMUNITY COLLEGE MISSION STATEMENT**

'O keia ka wā kūpono e ho'onui ai ka 'ike me ka ho'omaopopo i kō Hawai'i mau ho'oilina waiwai. Aia nō ho'i ma ke Kulanui Kaiāulu o ke Ko'olau nā papahana hou o nā 'ike 'akeakamai a me nā hana no'eau. Me ke kuleana ko'iko'i e ho'ohiki ke Kulanui e kāko'o a e ho'okumu i ala e hiki kē kōkua i ka ho'onui 'ike a nā kānaka maoli. Na mākou nō e ho'olako, kāko'o a paipai i nā Ko'olau a kō O'ahu a'e me nā hana no'eau ākea, ka ho'ona'auao 'oihana a me ka ho'onui 'ike ma ke kaiāulu — hō'a'ano a e ho'oulu i nā haumāna i ka po'okela.

Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawai'i and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide O'ahu's Ko'olau region and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.

CATALOG DESCRIPTION

Laboratory to accompany PHYL 142. Reinforces the facts and concepts of human anatomy and physiology discussed in PHYL 142 through dissections, examination of models, laboratory activities, and other hands-on experiences. This course is intended for students entering health care or medically related fields such as nursing, physical therapy and medical technology. (3 hours laboratory)

Pre-Requisite(s): Credit for or registration in PHYL 142 or equivalent preparation or consent of instructor.

STUDENT LEARNING OUTCOMES

Upon successful completion of PHYL 142L, the student should be able to:

1. Use the scientific method to design and conduct a clinical research study.
2. Describe the anatomy of the endocrine, circulatory, lymphatic, respiratory, digestive, urinary, and reproductive systems from prepared slides, models, and real and virtual animal dissections.
3. Use basic laboratory and medical equipment (microscopes, sphygmomanometers, stethoscopes, ECG apparatus, & respiratory spirometers) to evaluate functions of the above body systems.
4. Use critical thinking to analyze and interpret clinical data.
5. Prepare an oral presentation and written summary of lab activities using the scientific method.

OFFICE HOURS

This class has 1 office hour. The meeting can be by phone upon request; however, the preference is for an online live meeting using Google Meet: meet.google.com/efn-pvsv-exj. For lab, office hours occur immediately after class, but are available upon request. I will return all emails in

regards to office hours within 24 hours. Also, weekends and holidays will have a slower response.

LEARNING RESOURCES

The following lab manuals are available online for free from the instructor's website:

- WCC's A&P PHYL 142 Lab Manual
- WCC's Histology Lab Manual
- Textbook: Anatomy and Physiology Openstax (hard copy (\$50) or online free OK)

Purchase:

- PhysioEx 10.0; cost is \$47.99
- PhysioEx 10.0: Laboratory Simulations in Physiology Plus Website Access Code Card for PhysioEx 10.0 -- Access Card Package (includes paperpack)

ISBN-13: 9780136643746

PhysioEx 10

- Supply list: go to Lailima- Syllabus- Supply list, for a list of inexpensive supplies. This is only for online lab students. Most items can be purchased on Amazon.

***In Lab Only:** In addition, many students find it helpful to bring a digital camera and USB flash drive to class in order to photograph anatomical specimens and exchange data files and pictures from the digital microscopes.

COURSE CONTENT

Concepts or Topics

The student will describe and integrate basic biological principles and define basic

biological terms presented in lecture, required texts, and other instructional materials. These

principles include the following areas:

- ☐ Anatomy of the endocrine systems and physiology of hormone actions
- ☐ Functions and components of blood
- ☐ Anatomy of the heart and regulation of heart rate and cardiac output
- ☐ Anatomy of blood vessels and regulation of blood pressure and blood flow
- ☐ Mechanisms of general and specific resistance
- ☐ Anatomy and physiology of the respiratory system
- ☐ Digestive anatomy, processes, nutrition, and metabolism
- ☐ Anatomy of the urinary system, renal physiology, and fluid & electrolyte homeostasis
- ☐ Anatomy and physiology of male and female reproductive systems
- ☐ Physiology of pregnancy and fetal development
- ☐ Genetics and inheritance

COURSE TASKS

- 1) Attend class at scheduled times.
- 2) Participate in lab activities.
- 3) Complete required exercises in lab manual.

4) Complete 2 Practicals.

5) Present results of lab activities.

GRADING

Grading:

Laboratory practical exam	2x 250 500 points
Pre-Lab Quizzes (13)	100 points
Lab Manual/PhysioEx exercises	200 points
Lab Notebook	100 points
<u>Attendance</u>	<u>100 points</u>
TOTAL	1000 points

LABORATORY PRACTICAL EXAM (500 points). Two laboratory practical exams will be given during the semester. Each is worth 250 points each toward your lab grade.

The exam questions may consist of multiple choice, fill in the blank or a word bank, and pertain to: 1) any of the structures in the lab manual, or noted on handouts (referring to anatomical models and dissections); 2) the information related to physiology experiments performed; 3) any of the structures and functions on the assigned Slides.

Typically, exams cannot be made up; however, under unusual circumstances (emergencies) I may be able to fit a student in another lab time.

DO NOTE THAT THE LAST LAB PRACTICAL WILL BE HELD DURING THE LAST WEEK OF CLASSES, NOT FINALS WEEK.

PRELAB QUIZZES (100 points total). A prelab quiz will be taken on Laulima prior to each lab related to that day's material. There is a Prelab Quiz information list in Laulima-Syllabus-Quizzes. Please review it before taking the quiz. You need to have computer access. You will have 72 hours prior to lab to take the quiz and have 10 minutes to complete it. There is no scheduled prelab quiz when a lab practical is scheduled.

LAB MANUAL and PHYSIOEX EXERCISES (200 points): Complete all lab manual exercises related to that week's activity to be checked off by the instructor and emailed. Do the same for PhysioEx 10.0 activities. Lab exercises need to be fully complete for full credit and turned in on time for a total of 200 points. Homework is typically due the following week, unless there is a holiday.

LAB NOTEBOOK (100 Points): Students are required to maintaining a lab notebook. A lab notebook is a separate composition book used to document experiments, draw microscopic images, and to keep track of valuable lab information. It will be checked at the at the last lab practical. For online, students will need to drop it off at Imiloa 103. There will be a box outside that you place your lab notebook in. Please be sure to have your name and class information. If you live at a distance and cannot turn it in, please videotape it slowly, upload to your drive, and share with me. Let me know before you do this!

ATTENDANCE (100 points): Attendance is mandatory. Each unexcused absence will result in a deduction of 5 points.

Final Grade:

Tentative grades associated with semester exam scores are only to give a rough estimate of relative class standing, and are not used to determine the final grade

The standard grade scale will be used to determine your final grade. ($\geq 90\%$ =A, 80% - 89% =B, 70% - 79% =C, 60% - 69% =D, $\leq 59\%$ =F)

ADDITIONAL INFORMATION

LAB ATTIRE, CONDUCT, AND HYGEINE (IN-PERSON LABS ONLY)

Because biology labs often involve working with chemicals or hazardous materials, students

MUST wear close-toed shoes. In addition, some lab activities will require students to wear

gloves and safety glasses (provided by the college). Several labs will involve body

measurements (e.g., body fat), light exercise, or the placement of electrodes or sensors on the

body. Students should therefore wear loose-fitting clothing that allows for a free range of movement (i.e. no tight-fitting pants or jeans). Students failing to dress appropriately for lab will not be permitted to participate in laboratory exercises and will be considered absent. Students engaged in conduct that threatens themselves or others in the lab will be refused access to the lab for the remainder of the semester and receive an "F" grade for the course.

LAB SUBJECT POLICY

Most labs involve non-invasive clinical measurements (e.g., skin-fold measurement, reflex tests, etc). ALL students are required to participate in these activities. If you have a health condition or other reason why you should not participate you should inform the instructor.

Experiments involving invasive or semi-invasive procedures (e.g., finger sticks and urinalysis) will be performed on volunteers only.

DISABILITIES ACCOMMODATIONS

If you have a physical, sensory, health, cognitive, or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Accessibility Counselor to discuss reasonable accommodations that will help you succeed in this class. Roy Inouye can be reached at (808) 235-7448, royinouy@hawaii.edu, or you may stop by Hale Kāko'o 106 for more information.

SEX DISCRIMINATION AND GENDER-BASED VIOLENCE RESOURCES (TITLE IX)

Windward Community College is committed to providing a learning, working, and living environment that promotes personal integrity, civility, and mutual respect and is free of all forms of sex discrimination and gender-based violence, including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence, and stalking.

If you or someone you know is experiencing any of these, WCC has staff and resources to support and assist you. To report an incident of sex discrimination or gender-based violence, as well as receive information and support, please contact one of the following:

UH CONFIDENTIAL ADVOCATE

UH Confidential Advocate

Phone: (808) 348-0663

Email: advocate@hawaii.edu

TITLE IX COORDINATOR

Karla K. Silva-Park, Title IX Coordinator

Phone: (808) 235-7468

Email: karlas@hawaii.edu

Office: Hale Kāko'o 128

As a member of the University faculty, I am required to immediately report any incident of sex discrimination or gender-based violence to the campus Title IX Coordinator. Although the Title IX Coordinator and I cannot guarantee confidentiality, you will still have options about how your case will be handled. My goal is to make sure you are aware of the range of options available to you and have access to the resources and support you need.

For more information regarding sex discrimination and gender-based violence, the University's Title IX resources and the University's Policy, Interim EP 1.204, go to manoa.hawaii.edu/titleix/

ACADEMIC INTEGRITY

Work submitted by a student must be the student's own work. The work of others should be explicitly marked, such as through use of quotes or summarizing with reference to the original author.

In this class, students who commit academic dishonesty, cheating or plagiarism will have the following consequence(s):

Students will receive a failing grade for plagiarized assignments.

All cases of academic dishonesty are referred to the Vice Chancellor for Student Affairs.

ALTERNATE CONTACT INFORMATION

If you are unable to contact the instructor, have questions that your instructor cannot answer, or for any other issues, please contact the Academic Affairs Office:

- Location: Alaka'i 121
- Phone: (808) 235-7422

TWO-WAY COMMUNICATION DEVICES

These devices are not allowed in the classroom. Please see to it that these devices are turned off while in class.

UH POLICY ON EMAIL COMMUNICATION

The electronic communications policy adopted in December 2005 establishes the University of Hawai'i Internet service as an official medium for communication among students, faculty, and staff. Every member of the system has a hawaii.edu address, and the associated username and password provide access to essential Web announcements and email. You are hereby informed of the need to regularly log in to UH email and Web services for announcements and personal mail. Failing to do so will mean missing critical information from academic and program advisors, instructors, registration and business office staff, classmates, student organizations, and others.

This Syllabus is subject to change, when appropriate.

LAB SAFETY RULES (IN-PERSON LABS ONLY)

1. Be familiar with lab safety procedures and take appropriate precautions at all times to insure the safety of all lab students.
2. Follow all instructions carefully, especially when hazardous materials are being used.
3. Know the locations of important safety equipment: eyewash, safety shower, fire extinguisher, and first aid kit.
4. Report all injuries to the instructor immediately.
5. Dress appropriately for lab. Closed-toe shoes are required for ALL labs. Safety glasses and gloves are required for labs utilizing chemicals, bodily fluids, or hot-plates.
6. Report any hazardous conditions (e.g. chemical spills or broken glass) to the instructor immediately.
7. NO FOOD ALLOWED IN LAB
8. Chemicals used in lab may be poisonous, corrosive, or flammable. No chemicals, even those known to be safe, should be ingested or touched with un-gloved hands unless you are specifically directed to do so by your instructor.
9. Know how to safely operate all lab equipment and tools (e.g., microscopes, scalpels, and hematology supplies). Safe usage will be demonstrated by your instructor.
10. Clean all lab supplies and return them to their proper location before leaving lab.
11. Treat all organisms, living or dead, with care and respect. Use gloves when handling dissected specimens.
12. Place broken glass, sharps, and dissected specimens in the appropriate receptacles (NOT IN THE TRASH!)
13. Unless otherwise instructed, chemical wastes should NOT be disposed of down the drain.
14. Human tissues and bodily fluids (e.g., saliva and blood) must be disposed of in appropriate bio-hazard containers (NOT IN THE TRASH!).
15. Always remove gloves before touching clean surfaces: phone, computers etc..
16. Wash your hands immediately following each lab to reduce the possibility of contamination or infection. Wash hands with warm water and soap for 10-15 seconds after:
 - Handling any viable or potentially infectious material
 - Removing gloves before leaving lab

PHYL 142L Fall 2023 Lab Schedule

PHYL 142L Fall 2023

Sections: 61163 **Monday 8:30-11:15** Imiloa 103

WEEK	DATE	QUIZ	TOPICS	EXERCISES IN LAB MANUAL	HISTOLOGY MANUAL
			Lab Introduction		
1	8/21	Q1	Safety	Ch 1	Ch 9
			Functional Anatomy of Endocrine	PhysioEx 10.0 Ex 4	
2	8/28	Q2	Cardiovascular system: Blood	Ch 2	Ch 10
3	9/4		HOLIDAY		
4	9/11	Q3	Cardiovascular system: Heart, Blood vessels & Dissection	Ch 3 Heart Dissection	Ch 11 & 12
5	9/18	Q4	Conduction System of the heart and ECG	Ch 4 PhysioEx 10.0 Ex 6	
6	9/25	Q5	Cardiovascular system: physiology Anatomy of Blood Vessels Blood Pressure & Pulse Determination	Ch 5 PhysioEx 10.0 Ex 5	
7	10/2	Q6	Anatomy of the Respiratory System Sheep Pluck	Ch 7 Lung inflation	Ch 14
8	10/9	Q7	Respiratory System Physiology	Ch 8 PhysioEx 10.0 Ex 7	
9	10/16		Lab Practical #1 (Endocrine to respiratory physiology) Extra credit due- upload to Laulima	8:30-9:35 am	
10	10/23	Q8	Anatomy of the Digestive System	Ch 9	Ch 15
11	10/30	Q9	Chemical & Physical Processes of Digestion	PhysioEx 10.0 Ex 8	
12	11/6	Q10	Anatomy of the Urinary System	Ch 11	Ch 16
13	11/13	Q11	Urinalysis	Ch 12	
14	11/20	Q12	Anatomy of Reproduction Gametogenesis & Female cycles	Ch 13	Ch 17
15	11/27	Q13	Survey of Embryonic Development Genetics	Ch 14	
16	12/4		Lab Practical #2 (Digestive system to genetics) Turn in lab book (video and upload to laulima) Extra credit due- upload to laulima	8:30-9:35 am	

Tentative schedule

PHYL 142L Fall 2023 Quiz Schedule**Quiz Schedule**

Quizzes are located under **Test & Quizzes**. Be sure to review the [Prelab Quiz List](#) (click the link, but also located under **Resources**) before taking the quiz. It opens about 72 hours before and closes 1/2 hour before lab starts. You have 10 minutes to take the quiz. You can use notes, books, or google search.

QUIZ	TOPIC	DATES
1	Endocrine (note: this is a post quiz)	8/21 12 am- 8/21 11:59 pm
2	Blood	8/26 12 am -8/28 8:30 am
3	Heart	9/9 12 am -9/11 8:30 am
4	ECG	9/16 12 am -9/18 8:30 am
5	Blood Vessels	9/23 12 am -9/25 8:30 am
6	Respiratory System	9/30 12 am -10/2 8:30 am
7	Respiratory Physiology	10/7 12 am -10/9 8:30 am
8	Digestive System	10/21 12 am -10/23 8:30 am
9	Digestive Physiology	10/28 12 am -10/30 8:30 am
10	Urinary System	11/4 12 am -11/6 8:30 am
11	Urinalysis	11/11 12 am -11/13 8:30 am
12	Reproductive System	11/18 12 am -11/20 8:30 am
13	Genetics	11/25 12 am -11/27 8:30 am

PHYL 142L Lab Practical Schedule

Lab practicals are posted on **Laulima (tests and quizzes)** You will be provided with the password on the day of the exam. I will be online (google meet) 15 minutes before the start of the practical.

1. You are required to sign the **honor pledge**;
2. There are 50 questions multiple choice. It is timed for 1 hour.
3. You are permitted to use a 2 sided, 3x5 inch handwritten note card.
4. Submit your **extra credit** by the end of the day. Extra credit is a review of a primary literature article related to any A&P topic. Write a 1-page minimum, double spaced, typed review, provide the link to the article. Please don't use WebMD or other fact sites. Science Daily is not primary literature, but it can lead you to one. The other place to go is google scholar. If you are not sure, then email the link to me in advance and give me enough time to get back to you.

Lab Practical Schedule

Exam 1: Oct 16, 8:30-9:35 am

Exam 2: Dec 4, 8:30-9:35 am

Students Responsibility

It is your responsibility to be prepared for lab:

1. Attend classes on time
2. Complete prelab quizzes
3. Submit activities on time
4. Inform your instructor if you have an allergy or medical condition that precludes you from lab activities.

5. If you are ill, Contact your instructor right away.
6. If you are not sure, ask your instructor

PHYL 142 Lab Manuals

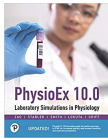
A&P Lab Manual 2 word document ([click here](#))

A&P Lab Manual 2 pdf ([click here](#))

A&P Histology Manual pdf ([click here](#))

Reference A&P Openstax Text ([click here](#))

PHYSIOEX 10 (click on the hyperlink here [PhysioEx 10](#) to purchase



You need the printed lab manual or online lab manual with access to the program

PHYL 142L Supply List (online only)

Please order the following (online lab only)

1:1 Human Heart Model - Genuine Life Size Cardiac Anatomical Model, 2 Parts Anatomical Teaching Models for Science Classroom and Cardiology Study \$28.99 [Amazon](#)



Blood pressure cuff (sphygmomanometer) and stethoscope (\$15.22 [Amazon](#))

Primacare DS-9197-BK Manual Professional Blood Pressure Kit, Black with Stethoscope



Vital Capacity Device

Voldyne 5000 Volumetric Exerciser (\$9 [Amazon](#))-



Pulse oximeter (~\$14 [Amazon](#))



Human torso model (~\$30 [Amazon](#))

Human Body Model Torso Anatomy Doll 15 Removable Parts Skeleton Visceral Brain with Detailed Manual 10.5inch Height

Brand Name Huakan

Number of Items 1

Part Number huamodelbody01

UNSPSC Code 42152400

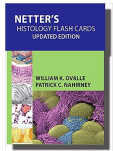


Urinalysis Test strips- **we will mail you those**, you provide the shishi cup.



OPTIONAL

Netter's Histology Flash Cards, Updated Edition 1st Edition \$31



Anatomy Flashcards Cards \$29



PHYL 142L Grading

Grading for PHYL 141L Online lab only

Grading:

Laboratory practical exam	2x 250	500 points
Pre-Lab Quizzes (13)		100 points
Lab Manual/PhysioEx exercises		200 points
Lab Notebook		100 points
<u>Attendance</u>		<u>100 points</u>
TOTAL		1000 points

PHYL 142L Websites/Videos

Microscope

Virtual Slide List:

<https://histology.medicine.umich.edu/full-slide-list>

Histology Guide

<http://histologyguide.com> slide box

Dissections

Heart

<https://youtu.be/VCskwk9b1kk>

Inflate lungs

<https://youtu.be/LaOBcF6N7e4>

Smoker's lung

<https://youtu.be/96PiRqFPLqs>

Homemade spirometer

<https://youtu.be/cy4kzOeLD5E>

Vital capacity calculator

<https://keisan.casio.com/exec/system/1341376925>

Primary Literature Article

What is a primary literature article?

It is original research published as *articles* in peer-reviewed journals, dissertations, technical reports, and conference proceedings. See example: [Three Dimensional Bioprinting of a Vascularized and Perfusable Skin Graft Using Human Keratinocytes, Fibroblasts, Pericytes, and Endothelial Cells](#)

An abstract is a summary of the article. It cannot be used as a reference. You need the full article.

The articles in **Science Daily** are secondary literature. They are summaries of primary literature. If you start there, and you scroll to the bottom of the article you may find the original article (primary source). It sometimes shows as a **DOI** and click the link. [Living skin can now be 3D-printed with blood vessels included](#)

Journal Reference:

1. Tânia Baltazar, Jonathan Merola, Carolina Motter Catarino, Catherine Bingchan Xie, Nancy Kirkiles-Smith, Vivian Lee, Stéphanie Yuki Kolbeck Hotta, Guohao Dai, Xiaowei Xu, Frederico Castelo Ferreira, W Mark Saltzman, Jordan S Pober, Pankaj Karande. **3D bioprinting of a vascularized and perfusable skin graft using human keratinocytes, (...).** *Tissue Engineering Part A*, 2019; DOI: [10.1089/ten.TEA.2019.0201](#)

If you can't access it, try searching in [GOOGLE SCHOLAR](#). If you still can't access the article, move on.

Information from Tara Severns, WCC Librarian:

how to [Connect Google Scholar to WCC Databases](#) (the first two minutes are probably the most useful).

[How to Read & Comprehend Scientific Research Articles](#)

[How to Read a Scholarly Article](#)

Characteristics of primary research:

Primary research is a methodology in which the **investigators directly collect** and **interpret new data**.

The results of primary research are reported *by the investigators themselves*.

Their reports (journal articles, conference presentations, academic theses or dissertations) contain the following sections:

Publication Information:

- **Author(s):** The names of the people who conducted the study
 - Their institutional affiliations are usually given
- **Title:** This is usually descriptive rather than clever
- Other information, such as conference or journal name, volume, Issue, date, and DOI

Abstract: A good abstract summarizes the study: The topic, hypothesis, methodology, results, and conclusions.

- This is sometimes absent or presented on another page.

Introduction: This does a few things:

- It provides context for investigation by summarizing what is known about the topic from prior research.
 - This is called a "literature review" and contains *secondary* information.
- It describes what is not yet known, and states why it's important to find out.
- It defines the specific hypothesis to be tested in order to fill that knowledge gap.

Methodology: This describes the methods used to collect and analyze the data for the purpose of testing the hypothesis.

Results: This presents the aggregated data (adding together or grouping of the raw data), often using charts, images, or tables.

Discussion: The investigators present their analysis of the results and what they think it means.

Conclusion: Sometimes combined with the Discussion, this outlines:

- The study's contribution to knowledge
- The limitations of the study
- New questions raised by study

References: A list citations for the prior research referenced in the Introduction section.

Office Hours

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PHYL 142L Lab notebook

LAB NOTEBOOK (100 Points): Students are required to maintaining a lab notebook. A lab notebook is a separate composition book used to document experiments, draw microscopic images, and to keep track of valuable lab information. It will be due at the at the last lab practical.

Videotape your lab notebook. Make sure you have good lighting and that you allow the camera to focus on each page. Count to at least 2 seconds to allow the camera to focus on a page before moving to the next page. The video usually runs about three to five minutes long. You will need to upload it to your google drive or to YouTube and share the link; make sure the link is active and you open share settings so I can view it.

The rubric is located in Assignments.

See lab notebook example ([click here](#))

Imiloa Map ([campus map](#), [Imiloa photo](#))

Lab Report

Please refer to the [Lab Report Document](#) for detailed information.

This report should consist of the following, and be sure to use headings.

1. A descriptive title (1 sentence).
2. Purpose statement (1-2 sentences)
3. Introduction (1 or more paragraphs)
4. A research question (1-2 sentences).
5. A hypothesis (1-2 sentences, including justification).
6. Procedure (materials and methods) (1 paragraph)
7. Results (data table, 1 labeled graph, plus 1-2 sentences) explanation).
8. Conclusions (1-2 sentences)

ECG Data Cardiovascular lab

Aloha,

Attached are ECG recordings for the cardiovascular lab.

Click link: [ECG DATA](#)

[ECG blank spreadsheet for data](#). There are 2 tabs- Table 1 and Table 2.

Michelle

Lab Liability Waiver

Please fill out the [lab waiver](#) to participate in lab. If you are under 18 at the start of this class you will need your parents signature (online).

Anatomy Models Video

Here are all the anatomy models:

[Anatomy Models Videos YouTube](#)