

This syllabus is a general representation of the course as previously offered and is subject to change.

BIOL 155 – Human Biology: Physiology and Introductory Anatomy

General Course Syllabus (as of February 2023)

About the Course:

Course Description: primarily a foundational course in human physiology and anatomy, suitable for students in General Sciences, Biology, and as a preparatory course for the Health Sciences professional degrees. The course covers both the anatomy and physiology of ten major organ systems of the human body. Its focus is to study human biology and understand how its physical structure and physiological changes enable the human body to adapt to varying environmental challenges.

Course Format:

- The course spans two academic terms from September through April
- Lectures and Tutorials

Credits: 6 credits

Prerequisites: One of CHEM 12, CHEM 100, CHEM 111 and one of BIOL 11, BIOL 12, BIOL 111.

BIOL 155 does not satisfy prerequisites for upper-level life sciences courses but can be used as science elective credit.

Course Learning Objectives:

By the end of this course students are expected to:

1. Have developed thorough understanding of fundamental concepts in human physiology, including interactions between major physiological systems, and effects of certain pathological conditions on physiology.
2. Have demonstrated solid knowledge of human anatomy including the understanding of the cause-effect relationship between structure and function of tissues, organs, and systems.
3. Be able to apply their knowledge of human physiology and anatomy in a variety of situations and communicate this knowledge concisely to a non-expert.
4. Be able to think critically about the importance and impact of the physiology of the human body on health care practice.
5. Have demonstrated a high degree of maturity, professionalism and respect for others expected of future health care professionals.

Required Materials:

- **Online Anatomy Atlas:** Visible Body Courseware subscription (instructions for signing up will be provided in the first week of Term 1)
- **Textbook:** Martini, F. H. et al. "Visual Anatomy & Physiology", 3rd Ed. (hardcopy or digital)

Evaluation:

Your overall grade for BIOL 155 will be based on assessments of both lecture and tutorial material.

Assessments	Weight
In-Class Midterm (1 per semester, Nov and March)	(10% each) 20%
Winter Term final (December exam period)	20%
End of Year Final (April exam period)	30%
Weekly Pre-Tutorial Assignment (21 tutorials in the year)	(0.25% each) 5%
Weekly Tutorial Attendance (21 tutorials in the year)	(0.25% each) 5%
Weekly Tutorial Quizzes (21 tutorials in the year)	(0.5% each) 10%
Tutorial Term finals (T1 Week 13, T2 Week 11)	(5% each) 10%

Course Policies:

Academic Concessions (Missed Tutorials or Assessments): Over the course of an academic year, things can and do come up that will cause some of you to miss individual assignments or exams – these may include acute illness or surgery, medical appointments, compassionate grounds, or conflicting responsibilities, such as caring for family members, or off-campus competitions or performance. If you let us know about these as early as you can, we can often arrange specific concessions so that you don't miss class credit because of your particular special circumstances.

Academic Integrity: We expect students to be honest in their work. This means that any work you submit for individual evaluation should be yours alone. Cheating is not worth the risk to your personal and professional reputation. Collaboration through group work is an effective way to learn, and the Teaching Team will clearly indicate when you should collaborate, for example during group work in tutorials.

Schedule of Topics:

TERM 1		
Week	Lecture	Tutorial
1	L1. Introduction to the Class and to the Human Body	<i>No Tutorial</i>
2	L2. Review: Basic Chemistry/ Review: Cell Biology and Biochemistry L3. Tissue Basics: Structure and Histology	T1 – Language of Anatomy
3	L4. Integument – Structure and Function L5. Skeletomuscular System Overview	T2 – Tissues and Skin
4	L6. Skeletal Muscle – Anatomy and Excitation L7. Skeletal Muscle – Contraction	T3 – Skeleton 1: Bones T17-20 note TR Day
5	L8. Skeletomuscular System – Force, Work and Energetics L9. Nervous System – Overview	T4 – Skeleton 2: Joints & Appendicular Skeleton
6	L10. Membrane Potential: Graded and Action Potentials L11. Synapses and Circuits	T5 – Muscles 1: Axial
7	L12. Nervous System Organization L13. Sensory Systems: Touch, Taste, and Scent	T6 – Muscles 2: Upper Limb
8	L14. Special Senses – Sight and Sound L15. The ‘Visceral’ Nervous System: The ANS, ENS and smooth muscle	T7 – Muscles 3: Lower Limb
9	L16. Hormones/Endocrine: Overview L17. Pituitary Hormones and Axes	T8 – Nervous 1: Spinal Cord and Nerves
10	*MIDTERM EXAM (L1-14) (No Class - MIDTERM BREAK)	<i>No Tutorial</i>
11	L18. Hormonal Control of Growth/Metabolism L19. Hormones of the Stress Response	T9 – Nervous 2: Brain + Eye
12	L20. Sex ‘Determination’ and Development L21. Sperm Production and Delivery	T10 – Nervous 3: ANS and Endocrine Systems
13	L22. The Ovarian and Uterine Cycles L23. Fertilization and Pregnancy	T11 – Tut Term Final
14	L24. Pregnancy: Labour, Delivery and Lactation (No Classes – Pre-Exam Period)	<i>No Tutorial</i>

TERM 2		
Week	Lecture	Tutorial
1	L25. Cardiovascular Overview – Blood Contents and Blood Production L26. Cardiovascular – Heart and Vessels	T12 – Reproductive System
2	L27. Cardiac Action Potential, Conduction and Contraction L28. The Cardiac Cycle and Cardiac Output	T13 – Cardio 1: Heart
3	L29. Physiology of Blood Flow and Blood Pressure L30. Capillary Exchange	T14 – Cardio 2: Vessels
4	L31. Global Regulation of Blood Pressure L32. Control of Blood Flow Within Tissue	T15 – Respiratory 1: Upper
5	L33. Respiratory System Overview L34. Boyle's Law and Ventilation, Airway Resistance and Breathing	T16 - Respiratory 2: Lower
6	L35. Gas Transport and Exchange No Lecture (Mental Health Session)	T17 - Immune 1: Lymphatic
7	* MIDTERM EXAM (L25-35) L36. The Immune System - Overview	T18 – Immune 2: Vaccines
8	L37. Immune System: Inflammation and Innate Immunity L38. Immune System: Adaptive Immunity	T19 - Digestive 1: Upper
9	L39. Digestive System Overview, and Oral Secretions to the Stomach L40. Digestive System – Gastric Secretions, Gastric Motility and Emptying	T20 - Digestive 2: Lower
10	L41. Roles of the Small and Large Intestine and Coordination of Digestion L42. Chemical Digestion and Absorption	T21 - Urinary 1: System
11	L43. Metabolism and the Many Roles of the Liver L44. Urinary System Overview (Kidney Functions)	T22 - Urinary 2: Nephrons <i>T17-20 note Good Friday</i>
12	L45. Urinary System - Glomerular Filtration L46. Urinary System - Tubular Reabsorption and Secretion	T23 - Tut Term 2 Final
13	L47. Regulation of Urine, Creation and Role of the Medullary Osmotic Gradient No Lecture (Wrap-Up/Review Session)	<i>No Tutorial</i>

University Policies:

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence.

UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom.

UBC provides appropriate accommodation for students with disabilities and for religious, spiritual and cultural observances.

UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions.

Details of the policies and how to access support are available on [the UBC Senate website](#).