



INTEGRATIVE PHYSIOLOGY

BACHELOR OF ARTS (BA)

<http://www.colorado.edu/iphy/>

MISSION AND VISION

Our mission in the Department of Integrative Physiology (IPHY) is to provide a flexible curriculum that equips students with the necessary skills for a wide range of career opportunities. Additionally, we strive to generate and share knowledge that is relevant to our field, and actively contribute to our affiliated communities.





Our vision is to be recognized as a leader in innovative educational and research programs, with a focus on advancing our understanding of human health and function throughout all stages of life.

Furthermore, we are committed to fostering inclusivity across various dimensions such as race, gender, age, culture, religion, identity, and experience. We warmly embrace and support all members of the IPHY community.

UNDERGRADUATE DEGREE PROGRAM

The IPHY physiology program leads to a Bachelor of Arts (BA) degree. Our curriculum integrates various life-science disciplines, including biology, anatomy, physiology, statistics, chemistry, and physics. Through these subjects, we explore the functioning of humans and other animals at the genetic, cellular, tissue, organ, and system levels. Our program focuses on understanding human health and function throughout all stages of life. We highly encourage students to engage in research, internships, independent study, teaching, honors, and extracurricular activities. This multi-faceted approach equips students with the knowledge, skills, and expertise necessary for advanced training and diverse careers in allied health, industry, government, science education, and research.

CONTACT US

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	Clare Small Room 114	Ramaley Biology Room N368B	Ramaley Biology Room W124

SOCIAL MEDIA



Facebook: [CUBoulderIntegrativePhysiology](https://www.facebook.com/CUBoulderIntegrativePhysiology)



Twitter and



Instagram: [@CUBoulderIPHY](https://www.instagram.com/CUBoulderIPHY)

BIOLOGY ADVISING – for information about meeting with an advisor, declaring the IPHY major, and for answers to frequently asked questions.

Location: Porter Bioscience Room B126

Website:

<https://www.colorado.edu/biologyadvising/>

PRE-HEALTH ADVISING – for information about declaring pre-health designation, setting your pre-health goals, and implementing your pathway plan.

Email: prehealth@colorado.edu

Website:

<https://www.colorado.edu/programs/prehealth-advising/>

CHECK YOUR DEGREE PROGRESS

A degree audit report is a tool on MyCUInfo (<https://myCUInfo.colorado.edu>) that tracks degree requirements. We recommend reviewing an up-to-date degree audit every semester to help yourself stay on track toward graduation.

REQUIREMENTS

Students must complete the general requirements of the College of Arts and Sciences and the required courses below. Students must complete a minimum of 38 credit hours, 30 credit hours in courses with the IPHY subject code, including a minimum of 18 upper-division credit hours, and 8 credit hours in a biology sequence including requisite labs. All required major courses and all required ancillary courses must be passed with a C- or better and cannot be taken pass/fail. Students must have a grade point average of at least 2.00 in the major to graduate.



Course descriptions

COURSES & CREDITS

53-57 credits total

Required Biology Sequence: Select one of the following biology sequences of lectures and labs(s):			
Lecture	EBIO 1210 & 1220 or MCDB 1150 & MCDB 2150	General Biology 1 & General Biology 2 Intro. to Cellular and Molecular Biology & Principles of Genetics	6 credits
Lab	EBIO 1230 & 1240 or MCDB 1161 or IPHY 1111 or MCDB 1171 or IPHY/MCDB 1181 or MCDB 2161 or MCDB 2171	General Biology Laboratory 1 & General Biology Laboratory 2 From Dirt to DNA: Phage Genomics Laboratory Analysis of Human Movement with Smart-Phone Technology Drug Discovery Through Hands-on Screens I Biological Probiotic/Drug Discovery Through Hands-on Screens From DNA to Genes, Phage Genomics Laboratory I Drug Discovery Through Hands-On Screens 2	2 credits
Required IPHY Coursework			
	IPHY 3410	Human Anatomy	3 credits
	IPHY 3430	Human Physiology	4 credits
	IPHY 3435 or IPHY 3437	Physiology Lab or Virtual Physiology Lab	2 credits
Advanced IPHY Coursework		*Select at least 15 credits (3 courses must be taken at CU Boulder).	
	IPHY 4060	Cell Physiology	4 credits
	IPHY 4300	Pathophysiology	3 credits
	IPHY 4440	Endocrinology	4 credits
	IPHY 4540	Biomechanics	5 credits
	IPHY 4580	Sleep Physiology	3 credits
	IPHY 4600	Immunology	3 credits
	IPHY 4650	Exercise Physiology	5 credits
	IPHY 4720	Neurophysiology	4 credits
**IPHY Major Electives			0-6 credits
Total Credit Hours			38 credits

IPHY Recommended Coursework: May be used to reach IPHY 30-credit total.			
	IPHY 1020	Introduction to IPHY	1 credit
	IPHY 3415	Human Anatomy Lab	2 credits
	**IPHY 3280	Introduction to Data Science and Biostatistics	4 credits

Required Ancillary Coursework			
	CHEM 1113 & 1114	General Chemistry 1 & Laboratory in General Chemistry 1	5 credits
	CHEM 1133 & 1134	General Chemistry 2 & Laboratory in General Chemistry 2	5 credits
	PHYS 2010	General Physics 1	5 credits
	***IPHY 3280 (recommended)	Introduction to Data Science and Biostatistics	3-4 credits
	or EBIO 1010	Intro. to Statistics and Quantitative Thinking for Biologists	
	or PSYC 2111	Psychological Science I: Statistics	
	or MATH 2510	Introduction to Statistics	
	or SOCY 2061	Introduction to Social Statistics	
Total Credit Hours			15-19 credits

*Three of these courses must be taken at CU Boulder, including Main Campus, Continuing Education, or select Education Abroad courses.

**The number of IPHY major electives needed to reach the requirement for 30 credit hours in IPHY coursework and 38 total major credit hours will vary based on what major courses are taken and could be unnecessary. See IPHY website for list of elective courses.

*** If a student successfully completes IPHY 3280, the course will count towards IPHY elective credit rather than ancillary credit.

GRADUATING IN FOUR YEARS

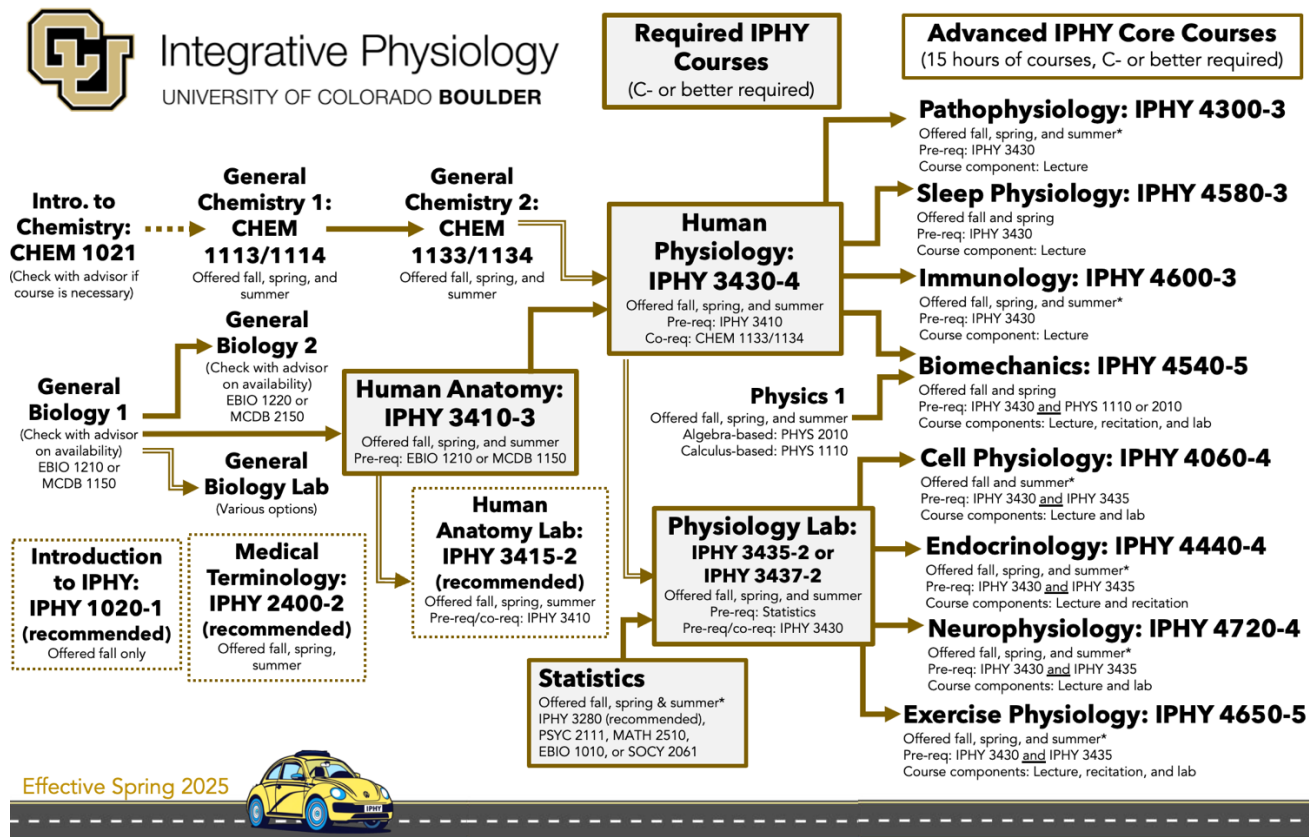
To ensure steady progress in the IPHY degree, please meet these requirements:

- Declare the major by the first semester.
- Complete general biology and chemistry sequences by the third semester.
- Finish anatomy and physiology sequences by the fifth semester.



Suggested 4-year plans

IPHY ROADMAP



LEARNING OUTCOMES - Students completing an undergraduate degree in IPHY are expected to:

1. Demonstrate a mastery of the core concepts defined by the 2011 *Vision and Change in Undergraduate Biology Education: A Call to Action*, including structure and function; information flow, exchange, and storage; pathways and transformations of energy and matter; and systems.
2. Apply knowledge of the human body to new and real-world contexts.
3. Extract meaning from visual representations of data (e.g., graphs, tables, images), and discern relevant from irrelevant information in various contexts.
4. Synthesize ideas and concepts from multiple sources to create a more comprehensive understanding of integrative physiology.
5. Apply the scientific method to research questions related to integrative physiology, including designing experiments, collecting and analyzing experimental data, forming evidence-based conclusions, and placing results in the larger scientific context.
6. Search, critically evaluate, and analyze the scientific literature related to integrative physiology, and apply this knowledge to critique claims in the popular media.
7. Possess effective collaborative, teamwork, and oral and written communication skills, including the ability to work with others towards shared goals and successfully communicate an understanding of integrative physiology to a wide audience.
8. Recognize the limit of one's knowledge or ability; and determine how to expand that knowledge or extend the ability.
9. Gain experience in disciplinary settings (e.g., research, teaching, internships, leadership, outreach, volunteering) and awareness of careers suitable for those with expertise in integrative physiology.

ADDITIONAL OPPORTUNITIES FOR IPHY STUDENTS



Health Professions Residential Academic Program (HPRAP) – Kittredge West Hall is the logical choice of residence for incoming freshmen and sophomores who have declared or are interested in life science majors and careers in the health professions.

Email: HPRAP@colorado.edu **Website:** <https://www.colorado.edu/hprap>



Join the IPHY Club – An effective way to make connections with fellow IPHY students and faculty. The IPHY Club is run by an Executive Student Board, and any IPHY student can apply for a board position.

Email: iphyclub@colorado.edu **GroupMe:** https://web.groupme.com/join_group/94074811/fMi9tTPK
Website: <https://www.colorado.edu/iphy/undergrad/student-club>



Undergraduate Research – Participate as a subject in a study performed on human volunteers or volunteer to assist in a laboratory.

Website: <https://www.colorado.edu/iphy/undergrad/undergraduate-research>



Internship for Credit – Earn academic credit for work experiences in laboratory, clinical, or field settings. Students earn 1 credit per 45 hours of work as an intern.

Email: jia.shi@colorado.edu (internship faculty advisor)

Website: <https://www.colorado.edu/iphy/undergrad/internship-credit>



Teaching Opportunities for Undergraduates – Gain valuable teaching and laboratory experience by teaching your peers in certain IPHY courses. Students must have earned at least a B in the course they wish to assist.

Website: <https://www.colorado.edu/iphy/undergrad/teaching-opportunities-undergraduates>



Independent Study – Earn academic credit for lab or library research experiences. Students earn 1 credit per 25 hours of work on an independent study project.

Website: <https://www.colorado.edu/iphy/undergrad/getting-credit-independent-study>



Arts and Sciences Honors Program – Provides a community for highly motivated and academically prepared undergraduate students to perform honors thesis research.

Email: tammy.maldonado@colorado.edu or alena.grabowski@colorado.edu (IPHY honors council representatives)

Website: <https://www.colorado.edu/honors/>



International Education – Offers support, resources, and programs for both outbound education abroad students and inbound international students.

Website: <https://www.colorado.edu/oie/>



Certificate Programs – Offer students the opportunity to pursue certain professional skills, customize their degree, or explore different educational interests.

Cognitive Science: <https://www.colorado.edu/ics/undergraduate-certificate-cognitive-science>

Neuroscience: <https://www.colorado.edu/neuroscience/undergraduate-education>

Public Health: <https://www.colorado.edu/certificate/publichealth/>



Scholarships and Awards – Financial support for undergraduate IPHY students.

Website: <https://www.colorado.edu/iphy/undergrad/scholarships-and-awards>



Career Services – Support CU students in each step of their career planning.

Website: <https://www.colorado.edu/career/>



Bachelor's-Accelerated Master's Degree Program – Offers qualified IPHY undergraduate students the opportunity to receive a bachelor's (BA) and master's (MS) degree in 5 years.

Email: iphygrad@colorado.edu

Website: <https://www.colorado.edu/iphy/graduate/bachelors-accelerated-masters-degree-program>