THE UNIVERSITY OF ARIZONA

UNDERGRADUATE EMPHASIS (SUB-PLAN) REQUEST FORM
MAJORS WITHOUT EXISTING EMPHASES (SUB-PLANS)

Requests for the creation of a new emphasis requires approval from the school director/department head (managing administrator), college academic dean, Curricular Affairs, Undergraduate Council (UGC), and College Academic Administrators Council (CAAC). Complete this form (for each proposed emphasis) and submit to Martin Marquez (martinmarquez@email.arizona.edu), no later than January 31, 2020 to be considered for inclusion in the 2020-2021 Academic Catalog.

I. Requested by (College & School/Department): College of Medicine, Department of Physiology

II. Proposer's name, title, email and phone number:

Claudia Stanescu, PhD
Assistant Professor (Educator Scholar)
Director Physiology Undergraduate Major
stanescu@email.arizona.edu
(520) 621-2795

III. Degree, major and number of students currently enrolled in the major (include dual majors):

Bachelor of Science in Health Sciences (BSHS)
Physiology and Medical Sciences
Number of majors (including dual majors): 1373

IV. Total number of students that have completed the major in past 3 years:

Academic Year	2016-2017	2017-2018	2018-2019
Number of Graduates	287	327	296

V. Minimum number of units required to complete the major (do not include foundation, general education, general electives or supporting coursework):
36 units

VI. Name of the proposed emphasis:

Physiology
Medical Sciences
Exercise and Extreme Physiology
Physiological Research and Innovation

VII. Campus and location offering-check the campus(es) and location(s) where this emphasis will be offered.

☐x **Main**	☐ UA Online	☐ Phoenix Biomedical	☐ Distance (type in location(s) below):

VIII. Provide a rationale for the proposed new emphasis. Survey your current majors to provide evidence of student interest in/demand for the proposed emphasis – attach the survey questions and results at the end of this proposal. Write a short summary of the findings of the survey. You may also include external data (Bureau of Labor Statistics, reports/letters of support from relevant bodies, etc.). Curricular Affairs can provide a job

posting/demand report by skills obtained/outcomes of the proposed emphasis. Please contact Martin Marquez to request the report for your proposal.

The long-standing Physiology Major has recently undergone a name change and restructuring. The new Physiology and Medical Sciences Major (approved in April 2019) includes more course flexibility to allow students to customize their degree to prepare for their chosen career and explore areas of interest outside of Physiology. In addition, we increased the number of required units in the major and added more elective options from the College of Medicine Basic Science Departments (Cellular and Molecular Medicine, Immunobiology, Pathology, Pharmacology). Our next step in allowing students to customize their major and gain access to courses offered by College of Medicine faculty is to create emphasis areas; this will also result in documentation of this additional expertise on a student's transcript and diploma.

The new emphasis areas will allow students to document their specialization in an area that would help them gain entrance to professional schools of their choice. Since the Physiology and Medical Sciences major now includes two specific areas, we initially wanted to document the student focus on Physiology vs. Medical Sciences. As we discussed these ideas with students and faculty, we learned that two additional areas would help with admission to specific professional or graduate schools. The Exercise and Extreme Physiology emerged as another area that is desired by students interested in Physical Therapy/Occupational Therapy programs or those interested in pursuing Athletic Training or Sports Medicine. The Physiological Research and Innovation emphasis area is of interest to students who would like to enroll in graduate school and pursue a career in research whether in academia or industry sectors. These two additional areas would allow students to document their course completion focus in these areas and give them an advantage for admission to these competitive programs.

Each emphasis area will require completion of 12 credits from a list of specified courses in the area of emphasis as part of the major. The Physiology emphasis area will be the default choice that students will be assigned to initially and will follow the same requirements as currently required for the Physiology and Medical Sciences major.

Students surveys support the addition of emphasis areas to the Physiology and Medical Sciences major (see appendix B). A total of 396 students completed the survey out of 1373 students currently enrolled in our major. The survey results indicate a strong interest in adding emphasis areas to our major with 78.3% of surveyed students choosing that they are 'somewhat interested' or 'very interested' in the addition of emphasis areas to the Physiology and Medical Sciences major. When asked if they thought that the emphasis area would be important for their chosen career, 81.2% said 'yes' for Medical Sciences, 47.5% said 'yes' for Exercise and Extreme Physiology, and 41.8% said 'yes' for Biomedical Research and Innovation. Physiology was presented as the default emphasis option in which their degree would not significantly change from the way it currently is structured and a similar question was not asked about the Physiology Emphasis area. When asked which emphasis area they would select if only allowed one option, 58.8% chose Medical Sciences, 21.9% chose Exercise and Extreme Physiology, 12% chose Physiology, and 7.3% chose Biomedical Innovation and Research. Although the number for the Biomedical Innovation and Research is the lowest, this percentage represents ~100 students within our currently enrolled student population. This number is high enough that we believe it supports the addition of this emphasis area to our program.

IX. At minimum, provide two unique learning outcomes for the proposed emphasis. Which courses in the emphasis will Introduce, Practice, and/or Assess the learning outcomes? Use the table below to provide the information. Add rows as needed:

Physiology Emphasis Area (current program learning outcomes)

Learning Outcome	Introduced	Practiced	Assessed
Students will be able to….			
1. Demonstrate knowledge of organ system function	PSIO 201	PSIO 202	PSIO 202, PSIO 485
2. Demonstrate knowledge of cellular function	PSIO 201	PSIO 303	PSIO 303, PSIO 404
3. Demonstrate ability to integrate from cell to organ system	PSIO 201, PSIO 202	PSIO 305	PSIO 305
4. Effectively read, evaluate and communicate scientific information	PSIO 101, PSIO 303	PSIO 485	PSIO 485
5. Conduct and/or evaluate laboratory experiments in physiology	PSIO 201, PSIO 202	PSIO 425	PSIO 425

Medical Sciences Emphasis Area

Learning Outcome	Introduced	Practiced	Assessed
Students will be able to….			
1. Demonstrate knowledge of pharmacology and/or toxicology	PSIO 101	PHCL 412	PHCL 422
2. Demonstrate knowledge of pathology	PSIO 101	PATH 415	PATH 416
3. Demonstrate knowledge of physiology	PSIO 101	PSIO 201, PSIO 202	PSIO 485
4. Demonstrate knowledge of immunobiology	PSIO 101	PSIO 202	PSIO 431, IMB 401
5. Demonstrate knowledge of histology	PSIO 101	PSIO 201, PSIO 202	CMM 410

Exercise and Extreme Physiology Emphasis Area

Learning Outcome	Introduced	Practiced	Assessed
Students will be able to….			
1. Demonstrate knowledge of exercise physiology	PSIO 201, PSIO 202	PSIO 420, PSIO 425, PSIO 426	PSIO 420

2. Demonstrate knowledge of extreme physiology	PSIO 201, PSIO 202	PSIO 305	PSIO 426, PSIO 487, PSIO 485

Physiological Research and Innovation

Learning Outcome	Introduced	Practiced	Assessed
Students will be able to….			
1. Conduct and/or evaluate research experiments in physiology and physiology related fields	PSIO 201, PSIO 202	PSIO 303, PSIO 305	PSIO 478, PSIO 492, PSIO 498H, PSIO 499
2. Demonstrate knowledge of the scientific method and its application to physiology and physiology related research	PSIO 101	PSIO 201, PSIO 202	PSIO 295H, PSIO 411, PSIO 495H

X. Requirements to meet 40% commonality across emphases. ABOR Policy 2-221-c. Academic Degree Programs Subspecializations requires all emphases within a major to share at least 40% curricular commonality across emphases (known as "major core"-courses counting towards major units and major GPA). List the required major core curriculum required of all emphases. Refer to your existing advisement report(s), if needed. Include the prefix, course number, course title and number of units. Add rows as needed.

Requirement Title/Description	Courses (include prefix, number, title, units)	Minimum units needed to satisfy requirement
Major Core	1. PSIO 101, Tackling Physiological Topics in Today's Society (3) 2. PSIO 201, Human Anatomy and Physiology I (4) 3. PSIO 202, Human Anatomy and Physiology II (4) 4. PSIO 303, Integrative Cellular Physiology (3) 5. PSIO 305, Integrative Systems Physiology (3)	17
	Total major core upper division units required	6
	Total major core units required	17

XI. Requirements specific to the proposed emphasis. List the required emphasis core, electives, and any special conditions students must meet to complete the emphasis using the table below. Include the prefix, course number, course title, and units for each course. Provide email(s)/letter(s) of support from home department head(s) for courses not owned by your department. Highlight and label (NEW) any new courses that must be developed for the emphasis. Add rows as needed.

Note: a proposed emphasis having similar curriculum with other plans (within department, college, or university) may require completion of a comparison chart. Total units required for each emphasis must be equal.

Physiology Emphasis Area

Requirement Title/Description	Courses (include prefix, number, title, units)	Minimum units needed to satisfy requirement
Emphasis Electives	Complete 12 units from the following list 1. PSIO 404, Advanced Cellular Physiology (3) 2. PSIO 411, Scientific Methods and Prof Ethics (3) 3. PSIO 420, Exercise Physiology (3) 4. PSIO 425, Meas and Eval of Physiological Func (3) 5. PSIO 426, Extreme Physiology (3) 6. PSIO 431, Physiology of the Immune System (3) 7. PSIO 450, Respiratory Physiology (3) 8. PSIO 452, Digestive Physiology (3) 9. PSIO 465, Neurophysiology (3) 10. PSIO 467, Endocrine Physiology (3) 11. PSIO 469, Reproductive Physiology (3) 12. PSIO 472, Quantitative Modeling of Biological Sys (3) 13. PSIO 484, Cardiovascular Muscle Biol and Disease (3) 14. PSIO 485, Cardiovascular Physiology (3) 15. PSIO 487, Physiology of Aging (3) 16. PSIO 489, Current Topics in Physiology (3) 17. PSIO 497A, Physiology of Mind-Body Interaction (3)	12
Major electives	See appendix A for list of major electives	7
	Total emphasis upper division units required	19
	Total major emphasis units required	19

Medical Sciences Emphasis Area

Requirement Title/Description	Courses (include prefix, number, title, units)	Minimum units needed to satisfy requirement
Emphasis Electives	Complete 6 units from the following list 1. CMM 401, Gross Anatomy (4) 2. CMM 410, Human Histology: intro to pathology (3) 3. CMM425A, Functional Human Histology (4) 4. CMM 465A, Fundamentals of Light Microscopy (2) 5. IMB 401, Medical Microbiology and Immunology (4) 6. PHCL 412, Introduction to Pharmacology (3) 7. PHCL 422, Introduction to Toxicology (3) 8. PHCL 430, Pain Neuropharmacology (3) 9. PHCL 442, Human Performance Pharmacology (3) 10. PHCL 450, Pharmacology of Sex (3) Complete 6 units from the following list 1. PSIO 411, Scientific Methods and Prof Ethics (3)	12

	2. PSIO 420, Exercise Physiology (3) 3. PSIO 427, Metabolism and Disease (3) 4. PSIO 431, Physiology of the Immune System (3) 5. PSIO 450, Respiratory Physiology (3) 6. PSIO 452, Digestive Physiology (3) 7. PSIO 465, Neurophysiology (3) 8. PSIO 467, Endocrine Physiology (3) 9. PSIO 469, Reproductive Physiology (3) 10. PSIO 485, Cardiovascular Physiology (3) 11. PSIO 487, Physiology of Aging (3) 12. PSIO 489, Current Topics in Physiology (3)	
Major electives	See appendix A for list of major electives	7
	Total emphasis upper division units required	19
	Total major emphasis units required	19

Exercise and Extreme Physiology Emphasis Area

Requirement Title/Description	**Courses (include prefix, number, title, units)**	**Minimum units needed to satisfy requirement**
Emphasis Core	1. PSIO 420, Exercise Physiology (3)	3
Emphasis Electives	Complete 9 units from the following list of electives 1. PSIO 425, Measurement and Evaluation of Physiological Function (3) 2. PSIO 426 , Extreme Physiology (3) 3. PSIO 485, Cardiovascular Physiology (3) 4. PSIO 487, Physiology of Aging (3) 5. PSIO 495M, Musculoskeletal Physiology (2) 6. PSIO 497A, Physiology of Mind-Body Interactions (3)	9
Major electives	See appendix A for list of major electives	7
	Total emphasis upper division units required	19
	Total major emphasis units required	19

Physiological Research and Innovation Emphasis Area

Requirement Title/Description	**Courses (include prefix, number, title, units)**	**Minimum units needed to satisfy requirement**
Emphasis Core	(NEW) PSIO 295R, Exploring Physiological Research (1) (NEW) PSIO 495R, Physiological Research Capstone (2) Research , Thesis or Independent Study Units (6) PSIO 399, PSIO 399H, PSIO 499, PSIO 499H, PSIO 492, PSIO 498H	9
Emphasis Electives	Complete 3 units from the following list of electives. 1. PSIO 411, Scientific Methods and Professional Ethics (3) 2. PSIO 478, Molecular Physiology Laboratory (3) 3. MED 481A, Innovation, Translation and Entrepreneurship (3) 4. PSIO 472, Quantitative Modeling of Biological Sys (3)	3
Major electives	See appendix A for list of major electives	7
	Total emphasis upper division units required	19
	Total major emphasis units required*	19

XII. Emphasis course/faculty information for existing courses. Complete the table below for all emphasis coursework. You can find information to complete the table using the UA course catalog or UAnalytics (Catalog and Schedule Dashboard> "Printable Course Descriptions by Department" On Demand Report; right side of screen). Provide email(s)/letter(s) of support from home department head(s) for courses not owned by your department. Add rows as needed.

Course prefix and number	Title	Course Description	Pre- requisites	Typically Offered (F, Sp, Su, W) and Frequency (every year, odd years, etc.)	Home Department	Faculty members available to teach the courses
PSIO 404	Advanced Topics in Cellular Physiology	Course combines lectures on several topics in cellular physiology with an emphasis on key experiments that have contributed to the knowledge base and full discussion among students and faculty of current studies that are being conducted on those topics. Within this course there will be an emphasis on the link between how studies in cellular physiology contribute to the understanding of human health and disease.	PSIO 201 and PSIO 202 (C or better in these two courses required for PRP and PSIO majors and minors). PSIO 303A or PSIO 303B.	Sp, every year	Physiology	Eric Price
PSIO 411	Scientific Methods and Professional Ethics	Course will introduce students to the historical development of scientific scholarship and current controversies within the scientific community; various approaches to scientific methods	PSIO majors and minors only and a C or better in (PSIO 201 and PSIO 202).	F, Sp, every year	Physiology	Juliana Lessa Sacoman

		and the application of these approaches to the natural sciences; elementary background knowledge of experimental design and the statistical procedures commonly used in physiological research; and important procedural, practical, and ethical issues pertaining to physiological research at a modern research university. The course will also provide practical personal experience in selected areas of professional analysis and communication.				
PSIO 420	Exercise and Environmental Physiology	Regulation and adjustment of physiological systems during acute exercise and adaptations with chronic exercise in various populations and environments; emphasizes physiological mechanisms.	Must be PSIO Advanced standing and PSIOM major or PSIO minors only and a C or better in (PSIO 201 and PSIO 202).	F, Sp, every year	Physiology	Douglas Keen
PSIO 425	Measurement and Evaluation of Physiological Function	Responses of physiological systems to work and environmental stresses. Emphasis on the principles and techniques of assessing physiological function by appropriate methods of data acquisition, analysis, and interpretation. Course includes	PSIO 201, PSIO 202 (C or better in these two courses required for PRP and PSIO majors and minors). Prerequisite or concurrently	F, Sp, every year	Physiology	Douglas Keen

		both lecture and structured laboratory components.	enrolled in PSIO 420.			
PSIO 426	Extreme Physiology	This course will examine the role of the hypothalamus in regulating homeostasis of a variety of parameters. In particular the response of the body to different environmental stressors such as temperature or altitude that perturb homeostasis will be examined. In addition a variety of environmental insults to the normal physiology of the body such as the effects of ground water pollution or second hand smoke will be considered.	PSIO majors and minors only. C or better in (PSIO 201 and PSIO 202).	Su, every year	Physiology	Douglas Keen
PSIO 427	Metabolism and Disease	Study the biochemical principles that govern metabolism in physiological and pathophysiological states. We will discuss the underlying biochemistry and cell biology of specific diseases that disrupt normal cellular physiology including metabolic diseases, cancer, diabetes, cardiovascular and neurodegenerative diseases. Course activities include lectures, classroom discussions and oral presentations and assessments include exams, presentations and discussions.	PSIO majors and minors only and a C or better (PSIO 201, PSIO 202, BIOC 385).	F, every year	Physiology	Juliana Lessa Sacoman

PSIO 431	Physiology of the Immune System	Focuses on physiology of the immune system, how it functions correctly, and some problems that occur when the immune system does not function properly (immunopathology).	PSIO majors and minors only and a C or better in (PSIO 201 and PSIO 202).	F, Sp, every year	Physiology	Zoe Cohen
PSIO 450	Respiratory Physiology	This course will introduce students to the structure and function of the respiratory system, including lung structure and development, physiology of the pulmonary airways, lung fluid balance, pulmonary circulation, pulmonary mechanics, gas exchange, regulation of breathing, respiration in the neonate and cardiopulmonary interactions. Each topic will be addressed from the molecular to the systems level of organization, and respiratory system disease will be used as a framework for understanding basic physiology.	Pre-requisites: PSIO 201, PSIO 202, C or better in these two courses required for PRP and PSIO majors and minors; PSIO 303A and PSIO 304, or PSIO 303B. Transfer credit OK for all.	Sp, every year	Physiology	Elizabeth Bailey, Ralph Fregosi, Scott Boitano
PSIO 452	Digestive Physiology	This course uses an integrative approach to introduce students to the structure and function of the digestive system, and will survey how the digestive system functions correctly, how it is regulated, and some problems that occur when it does not function properly.	C or better in PSIO 201 and PSIO 202.	F, Sp, Su every year	Physiology	Hilary Lease

PSIO 465	Neurophysiology	This course is concerned with how systems of neurons operate together to perform a wide array of functions including the processing of sensory information and generation of motor behaviors. Relevant aspects of neuroanatomy will be covered and some neural diseases will be discussed. A brief review of cellular neurophysiology will be provided at the outset of the course.	PSIO 201, PSIO 202 (C or better in these two courses required for PRP and PSIO majors and minors) and PSIO 303A or 303B. For non-majors: NROS 307.	Sp, every year	Physiology	Andrew Fuglevand
PSIO 467	Endocrine Physiology	Mammalian endocrine regulation from an integrative physiology perspective. Primary focus is on calcium and fuel metabolism, stress, fluid balance, reproduction, and growth and development.	PSIO majors and minors only. C or better in (PSIO 201 and PSIO 202).	F, every year	Physiology	Dawn Coletta, Randi Weinstein
PSIO 469	Human Reproductive Physiology	Examine contemporary issues in the field of reproductive physiology with particular emphasis on clinical applications and societal concerns. The class structure is designed to encourage application of primary scientific literature and text-book hypotheses to real-world practice and exploration of new issues. Students are encouraged to bring recent articles, newspaper clippings, opinions,	PSIO majors and minors only and a C or better in (PSIO 201 and PSIO 202).	Sp, every year	Physiology	Randi Weinstein

		ideas and questions to class to promote active learning.				
PSIO 472	Quantitative Modeling of Biological Systems	Techniques for development of mathematical models. Examples of molecular, cellular, and tissue level processes are considered. Underlying mathematical and biological concepts are introduced as needed.	PSIO 201 and PSIO 202 (C or better for majors and pre-majors) and MATH 129. MATH 129 only for non-majors.	F, every year	Physiology	Timothy Secomb
PSIO 478	Molecular Physiology Laboratory	Designed to teach students basic techniques commonly used in physiology research. This class will contain a theoretical portion that will explain in depth the molecular and physiological theory of scientific experimentation, and the laboratory portion will have selected experiments illustrating methodology in molecular biology and physiology that will involve the study of the central dogma (DNA, RNA and protein) in several levels of living complexity (cells, tissues and whole multicellular organisms).	PSIO majors and minors only and a C or better in (PSIO 201, PSIO 202, CHEM 241B, CHEM 243B). Prerequisite or concurrently enrolled in PSIO 303.	Sp, every year	Physiology	Juliana Lessa Sacoman, John Kanady
PSIO 484	Cardiovascular Muscle Biology and Disease	Course is geared towards obtaining knowledge and quantitative insights in the molecular and integrative biology of muscle with an emphasis on	PSIO 201, PSIO 202 (C or better in these two courses required for	Sp, every year	Physiology	Brett Colson, Hendrikus Granzier, Janis Burt, Jil Tardiff,

		cardiac muscle and the heart. It will focus on the molecular mechanisms that underlie the function and plasticity of muscle, including mechanisms of disease. In addition to lectures, the course will promote critical thinking and analysis skills by reading and analyzing primary research articles.	PRP and PSIO majors and minors) and PSIO 303A or PSIO 303B. MCB 410 or MCB 305 can substitute all course requisites for non-majors/minors PSIO/PRP.			John Konhilas, Samantha Harris
PSIO 485	Cardiovascular Physiology	Physiology principles of the heart and peripheral vasculature, viewed in an integrative manner, from the cellular to the systems level.	Must be PSIO Advanced standing and PSIOM major or PSIO minors only and a C or better in (PSIO 201 and PSIO 202).	F, Sp, every year	Physiology	Zoe Cohen
PSIO 487	Physiology of Aging	Course will examine the processes of lifecycle development, normal and pathological aging, senescence, and death from an eco-physiological perspective. Course objectives include understanding the impact of aging on major physiological systems; evaluation of relevant research papers form genetics, ecology, gerontology	Must be PSIO Advanced standing and PSIOM major or PSIO minors only and a C or better in (PSIO 201 and PSIO 202).	F, every year	Physiology	Allyson Roof

		and geriatrics; understanding the role of the elderly in modern society; and analysis of selected eldercare controversies in the scientific, medical, and political communities.				
PSIO 489	Current Topics in Physiology	Physiology seniors will explore selected physiological topics of current interest to today's society, providing students the opportunity to integrate and apply knowledge gained throughout their major courses. Guest lectures by experts, weekly readings and discussions will enable students to address the issues and challenges relevant to each of the topics. Working in teams, each issue will be critically analyzed from basic science, application and societal perspectives, and subsequently shared for full class discussion and final integration	Pre-requisites: PSIO 201, PSIO 202, C or better in these two courses required for PRP and PSIO majors and minors; PSIO 303A and PSIO 304, or PSIO 303B. Transfer credit OK for all.	Fall, every year	Physiology	Lucinda Rankin
PSIO 495M	Musculoskeletal Physiology Colloquium	Discussion-format class covering musculoskeletal topics related to injury and disease, considering relevant basic science, research and clinical applications.	Must be PSIO Advanced standing and PSIOM major or PSIO minors only and a C or better in (PSIO	Sp, every year	Physiology	Claudia Stanescu

			201 and PSIO 202).			
PSIO 497A	Physiology of Mind-Body Interactions	Students will explore the connections between their own mental/emotional processes and their physiological responses. As a result they will learn how to regulate their autonomic nervous system to reduce stress and improve performance.	Must be PSIO Advanced standing, PSIOM major or PSIOMMINU and PSIOMINU minors only. (PSIO 303A or PSIO 303B or PSIO 303 or PSIO 305) and a C or better in (PSIO 201 and PSIO 202).	F, Sp, every year	Physiology	Ann Baldwin
PSIO 492	Directed Research	Individual or small group research under the guidance of faculty.		F, Sp, Su, W, every year	Physiology	Faculty
PSIO 498H	Honors Thesis	An honors thesis is required of all the students graduating with honors. Students ordinarily sign up for this course as a two-semester sequence. The first semester the student performs research under the supervision of a faculty member; the second semester the student writes an honors thesis.	PSIO majors only. C or better in (PSIO 201 and PSIO 202). Student must be active in Honors College.	F, Sp, Su, every year	Physiology	Faculty
PSIO 499	Independent Study	Qualified students working on an individual basis with professors		F, Sp, Su, every year	Physiology	Faculty

		who have agreed to supervise such work.				
CMM 401	Human Gross Anatomy	This course series is an intensive, dissection-based survey of the gross structure of the human body. CBA401/501 (Summer Session I) will cover the Upper Extremity, Head, Neck, Back, Thorax, Abdomen, Pelvis and Lower Extremity.	The course is open to upper-level undergrads and graduate students with instructor permission.	Su, every year	Cellular and Molecular Medicine	David Elliott, Diana Darnell, James Proffitt
CMM 410	Human Histology: An Introduction to Pathology	This course will provide pre-health science professions students (Medicine, Pharmacy, Nursing, Public Health) as well as students planning a career in biomedical research with essential background in functional morphology of human tissues and organs. Pathology examples will be used to help illuminate normal structure and function. The mode of instruction will be interactive lecture, including facilitated group study of virtual slides.	MCB 181 or equivalent or permission of instructor. Credit for CMM 410 or CMM 425A but not both.	Su, every year	Cellular and Molecular Medicine	David Elliott, Diana Darnell, Helen Amerongen, James Proffitt, Lonnie Lybarger
CMM 425A	Functional Human Histology	This course will focus on the normal functional histology of the tissues and organs of the human body. The course includes basic cell biology of the cells, tissues, and organs, and emphasis will be given to integrating function with	Credit for CMM 410 or CMM 425A but not both.	F, every year	Cellular and Molecular Medicine	Nathaniel Mcmullen

		structure at all levels. Pathology will be used to help illuminate normal structure and function. Modes of instruction will include lecture, discussion, and computer-based laboratory.				
CMM 465A	Fundamentals of Light Microscopy and Electronic Imaging	This is a lecture course that teaches the essential principles and applications of light microscopy and electronic imaging. By the end of the course you will know the fundamentals of use and adjustment of a research microscope for various modes of light microscopy as well as a fundamental knowledge of digital imaging.		Sp, every year	Cellular and Molecular Medicine	David Elliott
PHCL 412	Introduction to Pharmacology	Students will learn about the history of pharmacology, along with the principles of how drugs act to produce changes within the body. Lectures will include the anatomy and physiology of body structures, with special emphasis on the processes that govern drug absorption, distribution, metabolism, and excretion. Other lectures will include the processes that establish and maintain the intracellular electrical charge and the membrane potential, and		F, every year	Pharmacology	Jennifer Schnellmann

		nerve impulse conduction. Students will learn detailed information about the autonomic nervous system and cardiovascular system, including how these systems are regulated and how they can malfunction. Lectures will include how different drugs act to alter the function of the autonomic nervous system and the cardiovascular system.				
PHCL 422	Introduction to Toxicology	Students will study system-based toxicology and biological processes involved in toxin/toxicant exposure as well as review the types of toxic agents available; the significance of biotransformation with respect to toxicity; and molecular, cellular, and pathophysiological responses of organ systems resulting from exposure to chemical agents relevant to human health. Finally, students will learn about relevant treatments and antidotes to common toxic exposures and receive instruction about common substances that are thought to be toxic but are not harmful. Emerging topics in toxicology will also be covered as they present	4 Units Physiology OR 4 Units Biology) and 4 Units Chemistry.	F, Sp, every year	Pharmacology	Jennifer Schnellmann

		themselves in the popular media so that we are responsive to current events.				
PHCL 430	Pain/Neuropharmacology	Students will be introduced to the basic concepts of pain, neural pathways of touch/pain, and neuropharmacology. Students will be required to read research articles and describe the goal of the experiments and well as the techniques used in the manuscripts. Students will be exposed to current research occurring within the department. Students should interact by asking questions and answering questions during lectures. Concepts will include our current understanding of pain perception, pain pathways, and how pain may be perceived at higher cortical levels of the central nervous system (CNS). Students will be introduced to different categories of pain and medications currently used to inhibit pain. In addition, students will learn other avenues of neuropharmacology including the reward pathways in the CNS and the blood brain barrier. Students will be tested on their ability to explain	PHCL 412 or 512 and 8 units of Biochemistry (300 or higher) and 8 units of Physiology (300 or higher).	F, every year	Pharmacology	Todd Vanderah

		concepts they have learned in class to other students.				
PHCL 445	Drugs of Abuse	Pharmacology and toxicology of abused drugs with emphasis on mechanisms of drug action, theories of addiction, and treatment approaches.		Sp, every year	Pharmacology	Tally Milnes
PHCL 460	Designing Drugs - from Chemistry to Cure	Course, conducted in collaboration with the College of Medicine Department of Pharmacology, will integrate content from the entire curriculum in an advanced course focused on identification of diseases of interest, identification of disease targets, and considerations of the design of drugs targeting these molecules. This will happen at a depth of knowledge greater than that of the introductory drug discovery course (PCOL 410), and will introduce students to computational approaches to designing drug molecules based on a protein target of known 3-dimensional structure using in-class work and homework assignments.	(BIOC 384 or BIOC 385) and PCOL 360 and PCOL 410.	Sp, every year	Pharmacology	May Khanna
IMB 401	Medical Microbiology and Immunology	The molecular and biological characteristics of microorganisms of importance in human health	Students should have taken	Sp, every year	Immunobiology	Dominik Schenten, Hsin-Jung Wu,

		and disease; the reaction of the host (immune system) to infectious agents and the mechanisms of host defense (immunity); molecular and cellular immunology and pathogenesis of infectious disease. This course will include areas such as immunology, virology, bacteriology, mycology, parasitology and infectious diseases.	undergraduate courses such as microbiology, immunology, biochemistry, molecular biology or biology to enroll in this course.			Michael Johnson, Nafees Ahmad
MED 481A	Innovation, Translation and Entrepreneurship	Where do new medical devices and therapeutic systems come from? In this course students will learn how one Innovates in the medical arena and how you take a concept of potential practical value and make it real. All the critical steps in medical innovation will be discussed.		Sp, every year	Medicine	Marvin Slepian

XIII. Emphasis course/faculty information for NEW courses. Complete the table below. Provide email(s)/letter(s) of support from home department head(s) for courses not owned by your department. Add rows as needed. Add rows as needed.

Course prefix and number	Title	Course Description	Pre-requisites	Status*	Anticipated first term offered	Typically Offered (F, Sp, Su, W) and Frequency (every year, odd years, etc.)	Home Dept.	Faculty members available to teach the courses
PSIO 295R	Exploring Physiological Research	This course will introduce Physiology majors to laboratory-based research including various research methods and data analysis in preparation for	PSIO 101	D	Fall 2020	F, every year	Physiology	Eric Price

		getting engaged in a research lab.						
PSIO 495R	Physiological Research Capstone	This course is a capstone to allow students to reflect on their research experience, learn from other student's research experiences, and present their research findings.	PSIO 295R, PSIO 201, PSIO 202	D	Fall 2021	Sp, every year	Physiology	Christopher Banek, Paulo Pires

*In development (D); submitted for approval (S); approved (A)

XIV. Using the table below, list each faculty member who will contribute to the teaching of courses in this emphasis and the teaching FTE they will contribute. Add rows as needed.

Course(s)	Name	Department	Rank	Degree	Faculty/% effort
PSIO 295R, PSIO 404	Eric Price	0705-Physiology	Lecturer	Doctor of Philosophy	0.30
PSIO 411	Juliana Lessa Sacoman	0705-Physiology	Senior Lecturer	Doctor of Philosophy	0.15
PSIO 420, PSIO 425, PSIO 426	Douglas Keen	0705-Physiology	Senior Lecturer	Doctor of Philosophy	0.75
PSIO 427	Juliana Lessa Sacoman	0705-Physiology	Senior Lecturer	Doctor of Philosophy	0.15
PSIO 431, PSIO 485	Zoe Cohen	0705-Physiology	Associate Professor	Doctor of Philosophy	0.30
PSIO 450	Elizabeth Bailey, Ralph Fregosi, Scott Boitano	0705-Physiology	Professor, Professor, Professor	Doctor of Philosophy	0.15
PSIO 452	Hilary Lease	0705-Physiology	Lecturer	Doctor of Philosophy	0.15
PSIO 465	Andrew Fuglevand	0705-Physiology	Professor	Doctor of Philosophy	0.15
PSIO 467	Dawn Coletta	0705-Physiology	Associate Professor, Senior Lecturer	Doctor of Philosophy	0.08
PSIO 467, PSIO 469	Randi Weinstein	0705-Physiology	Senior Lecturer	Doctor of Philosophy	0.22
PSIO 472	Timothy Secomb	0705-Physiology	Professor	Doctor of Philosophy	0.15
PSIO 478	Juliana Lessa Sacoman, John Kanady	0705-Physiology	Senior Lecturer, Lecturer	Doctor of Philosophy	0.15
PSIO 484	Brett Colson, Hendrikus Granzier, Janis Burt, Jil Tardiff,		Assistant Professor, Professor, Professor, Professor	Doctor of Philosophy	0.15
PSIO 487	Allyson Roof	0705-Physiology	Lecturer	Doctor of Philosophy	0.15
PSIO 489	Lucinda Rankin	0705-Physiology	Associate Professor	Doctor of Philosophy	0.15
PSIO 495M	Claudia Stanescu	0705-Physiology	Assistant Professor	Doctor of Philosophy	0.15

PSIO 495R	Christopher Banek, Paulo Pires	0705-Physiology	Assistant Professor, Assistant Professor	Doctor of Philosophy	0.15
PSIO 497a	Ann Baldwin	0705-Physiology	Professor	Doctor of Philosophy	0.15
PSIO 492	Faculty				0.15
PSIO 498H	Faculty				0.15
PSIO 499	Faculty				0.15
CMM 401	James Proffitt	Cellular and Molecular Medicine	Assistant Professor, Professor, Assistant Professor	Doctor of Philosophy	0.15
CMM 410	Helen Amerongen, Lonnie Lybarger	Cellular and Molecular Medicine	Assistant Professor, Professor, Professor, Assistant Professor, Assistant Professor	Doctor of Philosophy	0.15
CMM 425a	Nathaniel Mcmullen	Cellular and Molecular Medicine	Professor	Doctor of Philosophy	0.15
CMM 465a	David Elliott	Cellular and Molecular Medicine	Assistant Professor	Doctor of Philosophy	0.15
PHCL 412, PSIO 422	Jennifer Schnellmann	Pharmacology	Associate Professor	Doctor of Philosophy	0.30
PHCL 430	Todd Vanderah	Pharmacology	Professor	Medical Doctor, Doctor of Philosophy	0.15
PHCL 445	Tally Milnes	Pharmacology	Assistant Professor	Doctor of Philosophy	0.15
IMB 401	Dominik Schenten, Hsin-Jung Wu,	Immunobiology	Assistant Professor, Associate Professor	Doctor of Philosophy	0.15
MED 481a	Marvin Slepian	Medicine	Associate Professor	Medical Doctor	0.15

	Name	Department	Rank	Degree	Faculty/% effort

XV. **Special conditions for admission to/declaration of this emphasis** – explain in detail the criteria to declare this emphasis, including GPA requirements, completion of courses prior to declaration, application process, interviews, etc. These conditions must be approved by faculty governance to be enforced.

Students in Physiology and Medical Sciences will need to be in Advanced Standing before they can declare an emphasis area. All students who apply to advanced standing will be placed in the Physiology emphasis area unless they specify a different emphasis area (Medical Sciences, Exercise and Extreme Physiology, or Physiological Research and Innovation)

Students obtain Advanced Standing in the major after they complete a set of courses that ensure they are prepared to take upper division courses. The courses that need to be completed include 2 semesters of general chemistry (CHEM 151, 152 or equivalent), MATH 119A or Calculus I, English, and 2 semesters of Human Anatomy and Physiology.

XVI. **Emphasis productivity –** provide a detailed plan in the case the emphasis does not attract the number of anticipated students and/or the new courses have low enrollments. Will emphasis courses continue to be offered as described in Section XIII and XIV or will students be offered alternative courses from outside the emphasis as substitutions? Is the department/school/college committed to offering the courses regardless of the emphasis productivity?

If the proposed Emphasis areas do not attract the anticipated number of students and/or the new courses we plan to offer have low enrollment, the courses will continue to be offered. Most of the courses included are currently listed as electives in the major and have had satisfactory enrollments for many years. Physiology is committed to offering these courses regardless of emphasis productivity.

XVII. **Do you want the emphasis name to appear on the transcript? ☒ Yes ☐ No**

XVIII. **Do you want the emphasis name to appear on the diploma? ☒ Yes ☐ No**

XIX. **Anticipated semester and year to launch the proposed emphasis:** Fall 2020

XX. **Number of new faculty hires required to deliver the emphasis: 0**

XXI. **Budgetary impact**– indicate new resources needed and source of funding to implement the proposed emphasis. If reallocating resources, indicate where resources will be taken from and the impact this will have on the students/faculty/program/unit.

The addition of emphasis areas will not have any budgetary impact since most courses are already offered. The introductory research course (PSIO 295R) will be taught by Dr. Eric Price, a current faculty member who was coordinating a large course and is no longer doing so. Faculty who have already been hired, Dr. Christopher Banek and Dr. Paulo Pires, who do not currently have a teaching assignment due to initial protected time to set up their laboratory will teach the new capstone course (PSIO 495R, Introduction to Research) that we plan to offer in the Physiological Research and Innovation emphasis area.

Decision process for approval will include:
1) efficiency of course offerings.
2) course offerings are appropriate and match the expertise of the faculty.
3) evidence of sufficient student demand.
3) no major conflict with existing programs.

XXII. **Required signatures**

Managing Unit Administrator (print name and title): Claudia Stanescu, PhD
Director, Physiology Undergraduate Program

Managing Administrator's Signature: _____ Date: 1/31/2020

Managing Unit Administrator (print name and title): Nicholas Delamere, PhD
Professor and Head, Department of Physiology

Managing Administrator's Signature: _____ Date: 1/31/2020

Dean (print name and title): Michael M. I. Abecassis, MD, MBA
Dean, College of Medicine Tucson

Dean's Signature: _____ Date: _____

Dean (printed name and title): _____

Dean's Signature: _____ Date: _____

All programs that will be offered through distance learning and/or fully online must include the following signature. The signature of approval does not indicate a commitment to invest in this program. Any potential investment agreement is a separate process.

Joel Hauff, Associate Vice President Academic Initiatives and Student Success and Executive Director for Online and Distance Education Administration

Signature: _____ Date: _____

Note: In some situations, signatures of more than one unit head and/or college dean may be required.

For use by Curricular Affairs:

Committee	Approval date
Academic Programs Subcommittee	
Undergraduate Council	
College Academic Administrators Council	

☐ Create approval memo
☐ Send memo to college/dept and acad_org listserv
☐ Create emphasis code in UAccess, including secondary major emphasis code
☐ Upload approval memo and proposal documents to UAccess
☐ Notify acad_org of the plan code creation
☐ Notify ADVIP team, include proposers

APPENDIX A: Major Electives available for all emphasis areas

Course Number	Course Name
PSIO 295H	Introduction to Honors in Physiology
PSIO 295R	Exploring Physiological Research
PSIO 391	Preceptorship
PSIO 391H	Honors Student Preceptorship in Physiology
PSIO 395A	PhysioConnects A
PSIO 395B	PhysioConnects B
PSIO 399	Independent Study
PSIO 399H	Honors Independent Study
PSIO 404	Advanced Topics in Cellular Physiology
PSIO 411	Scientific Methods and Professional Ethics
PSIO 420	Exercise and Environmental Physiology
PSIO 425	Measurement and Evaluation of Physiological Function
PSIO 426	Extreme Physiology
PSIO 431	Physiology of the Immune System
PSIO 450	Respiratory Physiology
PSIO 452	Digestive Physiology
PSIO 465	Neurophysiology
PSIO 467	Endocrine Physiology
PSIO 469	Human Reproductive Physiology
PSIO 472	Quantitative Modeling of Biological Systems
PSIO 484	Cardiovascular Muscle Biology and Disease
PSIO 485	Cardiovascular Physiology
PSIO 487	Physiology of Aging
PSIO 489	Current Topics in Physiology
PSIO 492	Directed Research
PSIO 495H	Senior Honors Thesis Preparation
PSIO 495K	Inflammation and Disease
PSIO 495M	Musculoskeletal Physiology
PSIO 495R	Physiological Research Capstone
PSIO 495S	Sex Matters in Medicine
PSIO 495T	Topics in Physiology
PSIO 497A	Physiology of Mind-Body Interactions
PSIO 498H	Honors Thesis
PSIO 499	Independent Study
PSIO 499H	Honors Independent Study
CMM 401	Human Gross Anatomy
CMM 410	Human Histology: An Introduction to Pathology
CMM 425A	Functional Human Histology
CMM 465A	Fundamentals of Light Microscopy and Electronic Imaging
FCM 201	Being a Health Care Professional: An Overview
IMB 401	Medical Microbiology and Immunology

PATH 415	The Nature of Disease: General Pathology
PATH 416	The Nature of Disease: Diseases of Organ Systems
PHCL 412	Introduction to Pharmacology
PHCL 422	Introduction to Toxicology
PHCL 430	Pain Pharmacology
PHCL 442	Human Performance Pharmacology
PHCL 450	The Pharmacology of Sex

APPENDIX B: Student Survey Information

Student surveys are attached as a separate document. The surveys were done using Qualtrics and the link was sent via List Serv to Physiology Freshmen and Sophomores and also shared in class with students enrolled in PSIO 305 (Integrative Systems Physiology – a core course taken mostly by Juniors) and PSIO 485 (Cardiovascular Physiology – an elective course taken by Juniors and Seniors).

Note: The Biomedical Innovation and Research Emphasis Area name was initially included in the survey but has been changed to better reflect that the research focus would be in Physiology. The new name for this emphasis area that was included in this proposal is Physiological Research and Innovation.

Summary of Survey Results

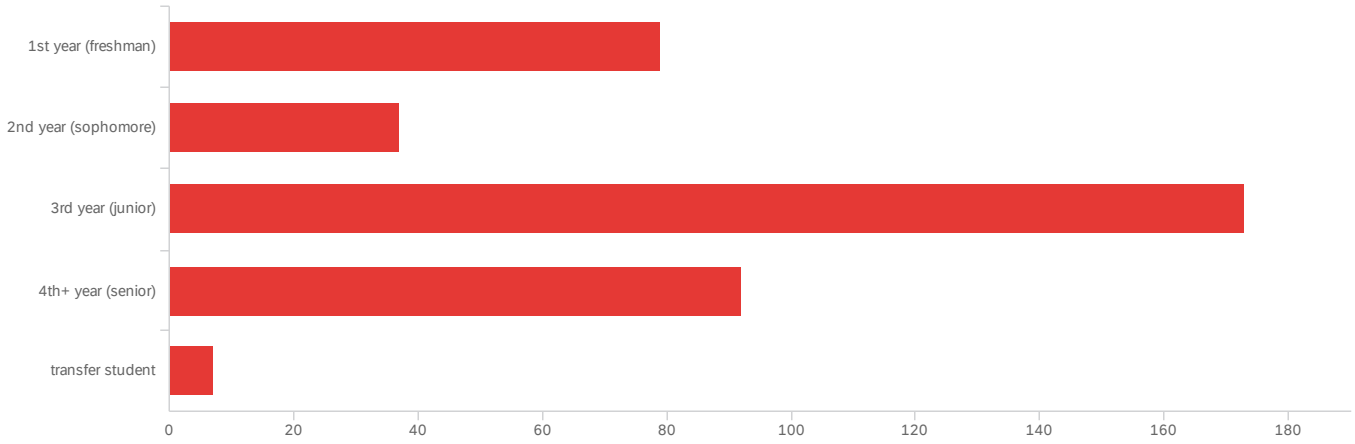
A total of 396 students completed the survey out of 1373 students currently enrolled in our major. The survey results indicate a strong interest in adding emphasis areas to our major with 78.3% of surveyed students choosing that they are 'somewhat interested' or 'very interested' in the addition of emphasis areas to the Physiology and Medical Sciences major. When asked if they thought that the emphasis area would be important for their chosen career, 81.2% said 'yes' for Medical Sciences, 47.5% said 'yes' for Exercise and Extreme Physiology, and 41.8% said 'yes' for Biomedical Research and Innovation. Physiology was presented as the default emphasis option in which their degree would not significantly change from the way it currently is structured and a similar question was not asked about the Physiology Emphasis area. When asked which emphasis area they would selected if only allowed one option, 58.8% chose Medical Sciences, 21.9% chose Exercise and Extreme Physiology, 12% chose Physiology, and 7.3% chose Biomedical Innovation and Research. Although the number for the Biomedical Innovation and Research is the lowest, this percentage represents ~100 students within our currently enrolled student population. This number is high enough that we believe it supports the addition of this emphasis area to our program.

Default Report

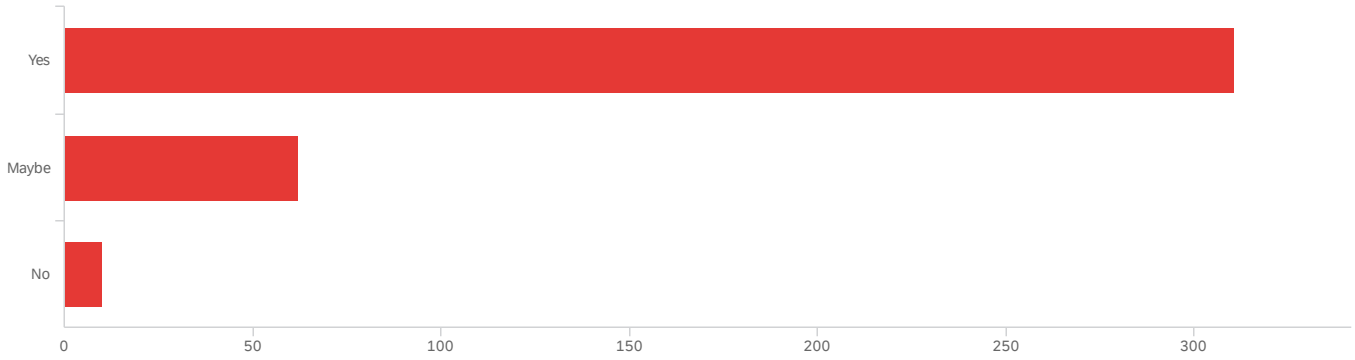
Physiology student survey for emphasis areas

January 30, 2020 1:33 PM MST

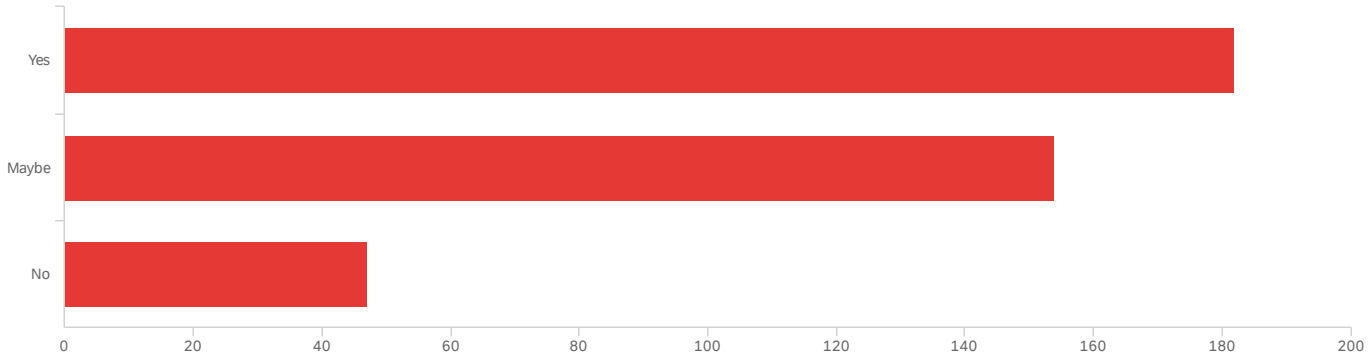
Q21 - What is your year? (school year, not based on credits)



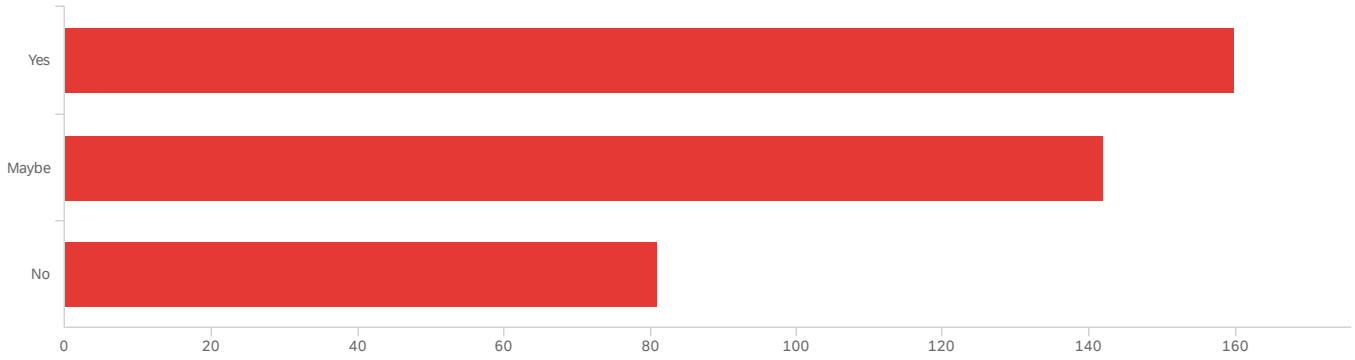
Q32 - Do you think that having a better understanding of Medical Sciences is/would be important for your chosen career path?



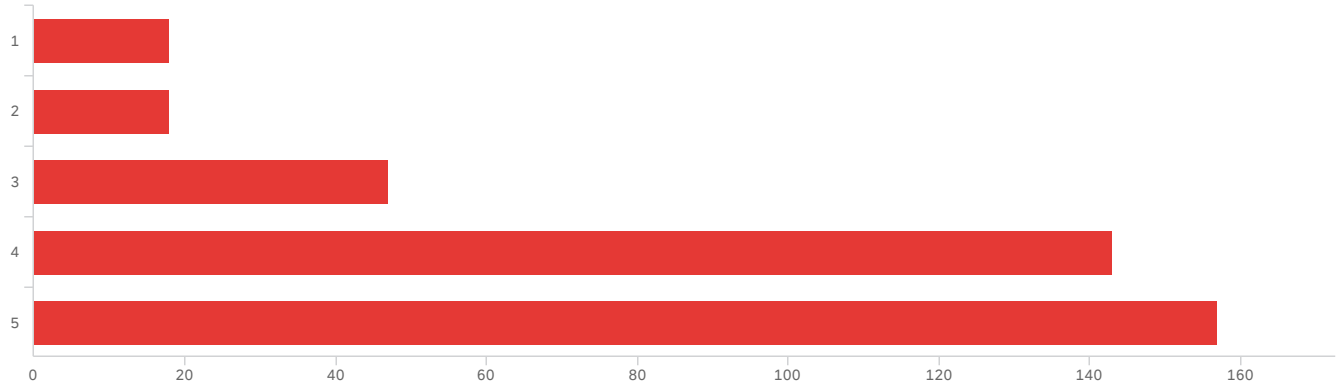
Q34 - Do you think that having a better understanding of Exercise and Extreme Physiology is/would be important for your chosen career path?



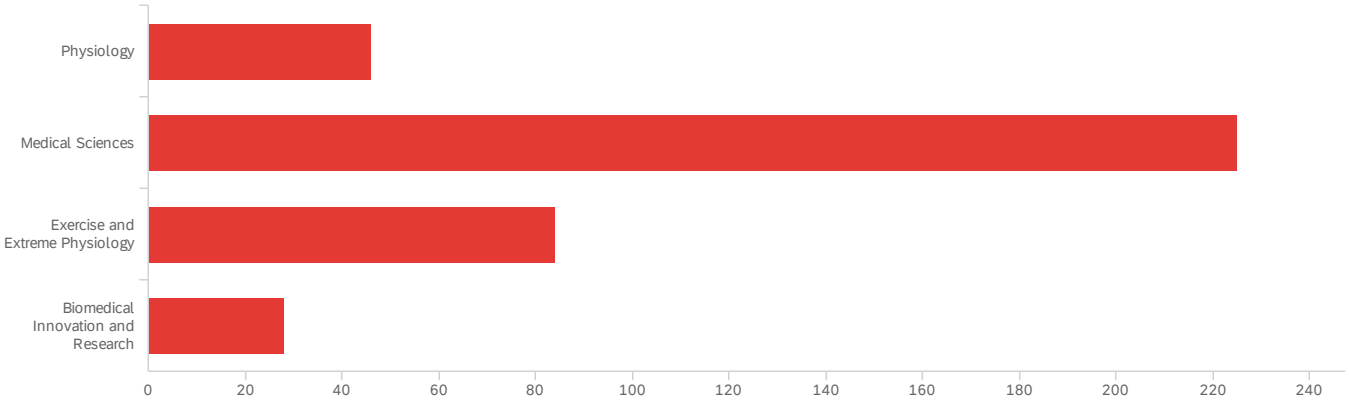
Q36 - Do you think that having a better understanding of Biomedical Innovation and Research is/would be important for your chosen career path?



Q30 - Q1: Based on the information about each emphasis area presented above, please rate your interest in adding an emphasis area to your major (1=not at all interested, 2=somewhat interested, 3=neutral, 4=somewhat interested, 5=very interested)



Q31 - Which emphasis area are you most interested in? Please select one keeping in mind that selecting “Physiology” means that your requirements for the major would not change.



Q39 - Do you have any comments or suggestions regarding the Emphasis Areas?

Do you have any comments or suggestions regarding the Emphasis Areas?
I think you should consider adding a surgical emphasis
All of the fields are very interesting, which makes it hard to choose a single emphasis to want to go into. I think thats good, diverse choices for everyone.
N/A
N/A
How would this change work for someone who is almost halfway through if they wanted an emphasis other than Physiology?
This would be a great idea
N/A
n/a
We need a Kinesiology class/emphasis
Physical Therapy
N/A
I think a lot of people would like it if a few nutrition-based physiology courses were added, if not for an emphasis course, then just for general interest.
no
I think it's very interesting, I would like to see the physiology emphasis a bit more fleshed out to actually be an emphasis that would require more units to make it unique like the other emphasis areas.
I am interested in three of the areas and I am not sure whether or not it would be important to take different classes from each different emphasis. Is it possible to have multiple emphasis areas or not?
Would it be possible to pursue two emphasis areas?
This seems like a very interesting additon to the major, however, I would like to see some incorporations of the arts (ie. dance). That would be something unique to the major, especially in regards to the history of the physiology and dance departments
I think all four should be added.
none
none
No

Do you have any comments or suggestions regarding the Emphasis Areas?

No

N/A

I don't think that they should be required, but rather they should be an optional addition to the already heavy workload of a Physiology student.

No

N/a

Add immunology to medical sciences

PSIO 431 (immunology)

None

Unless the emphasis provides some sort of distinction to graduate programs/employers (Which I don't think it would) then it is somewhat unnecessary. Students are likely to take courses unique to their interests in the first place. Providing information for classes in each emphasis would be useful but not as a way to funnel students into different tracts. This may prevent students from experiencing or pursuing courses they'd otherwise be avoiding in the emphasis tracts.

none

None at this time

Can we do a thesis in the medical science so that we may ascertain a better understanding of the medical field and all of its nuances

I would have most likely added the emphasis had it been available my first/second year. Right now, I am too far into my major to add any extra classes and graduate on time.

N/A

You added these too late into my college career for it to be feasible. No one in 305 is going to be able to add all of these classes without adding extra semesters

N/A

Maybe there could be different emphasis areas regarding the popular professions students go into after their major

No

I enjoy the idea, but would expand on the difference between an emphasis in physiology vs medical science and add some additional classes to the medical sciences area

No

no

Requires addition of too many credits. Combine with electives or replace as "elective track"

Do you have any comments or suggestions regarding the Emphasis Areas?

I don’t see why this wouldn’t benefit everyone. I think this is a great idea.

no

Medical Sciences should include classes like Neuro and Repro. These systems are vital to understanding of organ interactions and can be very important to specifical medical devisions. I would not want to miss my emphasis option simply because I felt neurology or ob-gyn to be my passion, but were prevented from utilizing those classes.

Thank you

Yes, at least for the medical sciences emphasis you should include courses that are now required for U of A tucson medical school such as genetics and the both of the biochems, that way you are actually able to complete the requirements for medical school

I feel that adding an emphasis may be helpful in figuring out what specifically students want to focus on in the future, especially since Physiology is such a broad major

Allow for more than one emphasis. I believe I'd be able to get both an emphasis in biomedical innovation and research along with an emphasis in exercise and extreme physiology.

No

na

N/A

N/A

No

I think it’s a great idea, keep it up :)

I believe adding an emphasis area would benefit the student helping them focus on what they feel is important when applying to continuing education programs

No, seems well done and having taken some of the classes in the lists, they are helpful to their own respective areas

It's a very good idea!

If approved, when would this be in effect?

I do not think an emphasis would be beneficial to students. Physiology broadly encompasses pre med and if you add the emphasis it almost categorizes students from exploring all that the medical field offers.

I would be interested but im not because i dont have time to take 4 classes by the time I graduate. If asked sooner i would comsider one

It would give this major a guide for students to learn about their career path.

N/A

n.d

Do you have any comments or suggestions regarding the Emphasis Areas?

no
N/A
It's a very good idea!
Find a way that if an emphasis is to be pursued, it is possible to enroll in it even if you do not get to enroll early due to being in honors or such.
No
When this would possibly be available/start?
N/A
n/a
N/A
I feel the exercise emphasis should include something regarding nutrition, as those areas are very intertwined.
I like the idea, but I feel like I would be taking more classes this way, and it would mean that my options would be limited more than they already are with scheduling.
I am about to graduate and having to get 12 units for an emphasis is unrealistic for me especially as I consider numerous med schools with similar but varying requirements. If this was done earlier in my schooling it would be a great idea maybe. Like I said different med schools have different requirements so it is important that pre med students can select what they will need.
N/A
Why are some of the general physiology electives not in a specific emphasis such as PSIO 465 or PSIO 431 or PSIO 469?
Some classes focused on skeletal, or with a focus on dentistry would be cool.
None
None
none
N/A
None
n/a
I wish yall thought of this years ago and not my last semester here haha.
None

Do you have any comments or suggestions regarding the Emphasis Areas?

None

N/A

N/A

N/A

Maybe still allow students to take courses outside of the emphasis but a limited number.

N/A

Unfortunately, even if these are implemented as soon as next year, it would be hard for me to complete it because I would be a senior anyway.

dental related physio courses would be nice. I feel dental students are not emphasized at UArizona. I feel we need more applicable courses for them which could lead to more attendance by Predental students.

Perhaps include the NSC 308 in addition to PSIO 427 as a metabolism option.

N/A

N/A

Wish this was available when I was a freshman because I do not have time now to gain an emphasis in a topic that I really like such as the medical science one

no

I think the biomedical innovation and research emphasis needs more options. PSIO 399? Biomedical engineering?

N/A

No

Na

na

I think its a great idea

none

Would this affect graduation if I'm halfway through my junior year?

n/a

I think the emphasis areas are a really good idea because it allows students to focus on an area that relates to their future careers. And it allows them to know what course they can take that are related to what they are interested in

Do you have any comments or suggestions regarding the Emphasis Areas?
None
Subplans should be added. It guides students to courses needed for their career goals.
N/A
n/a
N/A
no
If there were special scholarship/internship opportunities on campus that were easily accessible for the emphasis, that would be nice.
Idk

End of Report