

Attachment 8
New BS in Integrative Physiology
FS Executive Committee Review – Oct. 29, 2019 Meeting
<https://kstate.curriculog.com/proposal:3427/form>

Program Approval

I. General Information

A. Institution Kansas State University

B. Program Identification

Degree Level: Bachelors of Science

Program Title: Kinesiology

Degree to be Offered: Integrative Physiology

Responsible Department or Unit: Department of Kinesiology/College of Health and Human Sciences

CIP Code: 26.0901

Modality: Face-to-Face

Proposed Implementation Date: August, 2020

Total Number of Semester Credit Hours for the Degree: 120

II. Justification

The Kinesiology Department at Kansas State University currently offers one degree, a Bachelor of Science in Kinesiology. Our students have diverse career aspirations, however, with the three most popular areas being Health Science Pre-Professional, Applied Exercise, and Physical Activity Health Promotion from student surveys. The majority of our students are interested in a career in a health profession (e.g., medicine, physical therapy, physician assistant, nursing, occupational therapy, etc.). While our degree has been successful in preparing students for professional schools (primarily due to the expertise and disciplines of our faculty), we believe that adding a degree that specifically prepares students for health careers would be very attractive and beneficial for students.

The intent of the B.S. in Integrative Physiology (IP) degree is to restructure our B.S. in Kinesiology curriculum to make the IP degree specific towards students interested in health careers to better prepare them for health professional schools. Our current B.S. in Kinesiology degree will still be offered for students who are interested in a general kinesiology curriculum. The IP curriculum would be broad enough to allow students in different health career paths to select courses that meet the requirements of their respective health discipline. By allowing sufficient unrestrictive elective options in this degree, students are able to enroll in courses in other departments at Kansas State University which fulfill necessary elective requirements, depending on their specific career aspirations. The core curriculum in the IP degree is concentrated on systems physiology (cardiovascular, cardiopulmonary, neuro, muscle, etc.) and how these systems interact with each other in health and disease. Systems physiology has consistently served as the foundation for health profession preparation. We currently have seven internationally recognized experts that are tenured/tenure track physiologists in our department that teach and conduct research in physiology (health and disease, including heart failure, cancer, asthma, diabetes, etc.) that forms the backbone of this degree. Therefore, no additional faculty would be required to initiate this degree.

III. Program Demand: Select one or both of the following to address student demand:

A. Survey of Student Interest

Number of surveys administered:	676
Number of completed surveys returned:	462
Percentage of students interested in program: ...	85%

In December 2018 we polled all our current Kinesiology students we are advising (n=676) and asked which area of Kinesiology they were pursuing (i.e., Health Science Pre-Professional, Applied Science, Physical Activity Health Promotion). The majority of those who responded stated Health Science Pre-Professional (85%; n=394).

B. Market Analysis

The bachelor’s degree in Integrative Physiology, with a strong foundation in exercise physiology, at Kansas State University from the Department of Kinesiology was designed to specifically recruit and train students interested in health careers.

- 1) Data indicate strong demand and job growth to support a Bachelor of Science in Integrative Physiology at Kansas State University.
 - 2) There is no competition to this program in the Big 12 and minimal competing programs across the United States.
 - 3) The degree offers an above average salary and sense of a “meaningful” degree.
- **Strong Demand.** At the University of Colorado-Boulder, in 2003 a bachelor’s degree in Integrative Physiology was offered and now is the second-largest major at that institute with over 2,000 undergraduates.
 - **No Competition within the Big 12 or Kansas regents institutes and minimal degree saturation across the United States.** Across all Kansas Publication and Training programs in higher education there are no “Physiology” Bachelor’s level degrees offered ([Kansasregents.org/academic affairs/program_search](http://Kansasregents.org/academic%20affairs/program_search)). Further, there are no bachelor level degrees in Integrative Physiology offered at any Big 12 University. Across the United States, there are three Institutions, that we are aware of, that offer a bachelor’s degree in “Integrative Physiology” (Univ. of Nevada at Las Vegas, Univ. Colorado-Boulder, Alma College).
 - **High degree sentiment.** According to current data (2019) on most meaningful college major PayScale Human Capital from over 400 majors, a degree in Integrative/Exercise Physiology ranks in the top 15 for most meaningful college majors. Specifically, according to Payscale.com, a degree in Integrative/Exercise Physiology scores #11 from over 400 majors analyzed for perceived meaning of the bachelor’s degree (percent of Alumni who say “their work make the world a better place”).

IV. Projected Enrollment for the Initial Three Years of the Program

Year	Headcount Per Year		Sem Credit Hrs Per Year	
	Full- Time NEW	Part- Time NEW	Full- Time	Part- Time
Implementation	20		600	
Year 2	35		1,050	
Year 3	50		3,135	

V. Employment

The U.S. Department of Labor, Bureau of Labor Statistics reported the job growth outlook for those with a bachelor’s degree in integrative/exercise physiology for the 2016-2026 time frame is projected to be 13%, which is faster than average for all job categories. Further, according to current data (2019) on average salary from

PayScale Human Capital from over 400 majors, a degree in exercise/integrative Physiology ranks in the top 15 for most meaningful college majors with an average salary of ~\$71,000.

VI. Admission and Curriculum

A. Admission Criteria

University Admission Requirements:

Complete the [precollege curriculum](#) with at least a 2.0 GPA (2.5 for [non-residents](#)) **AND** achieve one of the following:

- A 21 or higher composite score on the ACT assessment **OR**
- A 1060 or higher on the SAT ERW+M if taken after March 2016 **OR**
- A 980 or higher on the SAT CR + M if taken before March 2016 **OR**
- Rank in the top third of your graduating class

AND, if applicable, achieve a 2.0 GPA or higher on all college credit taken in high school.

B. Curriculum

Year 1: Fall

SCH = Semester Credit Hours

Course #	Course Name	SCH....
KIN 220	Biobehavioral Bases of Physical Activity	4
BIOL 198	Principles of Biology	4
PSYCH 110	General Psychology	3
ENGL 100	Expository Writing I	3

Year 1: Spring

Course #	Course Name	SCH....
ECON 110	Principals of Macroeconomics	3
MATH 100	College Algebra	3
SOCIO 211	Introduction to Sociology	3
ENGL 200	Expository Writing II	3
KIN 310	Measure & Research Techniques in Kinesiology	4

Year 2: Fall

Course #	Course Name	SCH....
COMM 106	Public Speaking I	3
KIN 360	Anatomy and Physiology	8
STATS 325	Introduction to Statistics	3
GNHE 210	Foundations of Human Ecology	1

Year 2: Spring

Course #	Course Name	SCH....
KIN 335	Physiology of Exercise	4
KIN 336	Physiology of Exercise Lab	1
KIN 345	Exercise Behavioral Science	5
CHM 210	Chemistry I	4

Year 3: Fall

Course #	Course Name	SCH....
	Foundations in Integrative Physiology Course	3
	Integrative Physiology Elective	3
FNDH 400	Human Nutrition	3
	Unrestrictive Elective	4
	Unrestrictive Elective	3

Year 3: Spring

Course #	Course Name	SCH....
	Foundations in Integrative Physiology Course	3
	Humanities Elective	3
	Humanities Elective	3
	Unrestrictive Elective	3
	Unrestrictive Elective	3

Year 3: Summer

Course #	Course Name	SCH....

Year 4: Fall

Course #	Course Name	SCH....
	Foundations in Integrative Physiology Course	3
	Integrative Physiology Elective	3
	Unrestrictive Elective	3
	Unrestrictive Elective	3
	Unrestrictive Elective	3

Year 4: Spring

Course #	Course Name	SCH....
	Foundations in Integrative Physiology Course	3
	Kinesiology Elective	3
	Unrestrictive Elective	3
	Unrestrictive Elective	3
	Unrestrictive Elective	3

Year 4: Summer

Course #	Course Name	SCH....

Total Number of Semester Credit Hours [120]

VII. Core Faculty

Note: * Next to Faculty Name Denotes Director of the Program, if applicable
 FTE: 1.0 FTE = Full-Time Equivalency Devoted to Program

Faculty Name	Rank	Highest Degree	Tenure Track Y/N	Academic Area of Specialization	FTE to Proposed Program
Carl Ade	Assist Professor	Ph.D.	Y	Cardiovascular and Translational Physiology	0.20
Tom Barstow	Professor	Ph.D.	Y	Muscle Physiology	0.20
Brad Behnke	Professor	Ph.D.	Y	Cardiovascular Physiology	0.20
Steven Copp	Assist Professor	Ph.D.	Y	Neurophysiology	0.20
Craig Harms	Professor	Ph.D.	Y	Cardiopulmonary Physiology	0.10
Tim Musch	Professor	Ph.D.	Y	Cardiovascular Physiology	0.15
David Poole	Professor	Ph.D., D.Sc.	Y	Cardiorespiratory and Comparative Physiology	0.15

Number of graduate assistants assigned to this program 5

VIII. Expenditure and Funding Sources (*List amounts in dollars. Provide explanations as necessary.*)

A. EXPENDITURES	First FY	Second FY	Third FY
Personnel – Reassigned or Existing Positions			
Faculty	\$149,670	\$152,663	\$155,717
Administrators (<i>other than instruction time</i>)			
Graduate Assistants	\$75,000	\$75,000	\$75,000
Support Staff for Administration (<i>e.g., secretarial</i>)	\$3,284	\$3,350	\$3,417
Fringe Benefits (<i>total for all groups</i>)	\$68,386	\$69,713	\$71,107
Other Personnel Costs			
Total Existing Personnel Costs – Reassigned or Existing	\$296,340	\$300,726	\$305,241
Personnel – – New Positions			
Faculty			
Administrators (<i>other than instruction time</i>)			
Graduate Assistants			
Support Staff for Administration (<i>e.g., secretarial</i>)			
Fringe Benefits (<i>total for all groups</i>)			

Other Personnel Costs			
Total Existing Personnel Costs – New Positions			
Start-up Costs - - One-Time Expenses			
Library/learning resources			
Equipment/Technology			
Physical Facilities: Construction or Renovation			
Other			
Total Start-up Costs	0	0	0
Operating Costs – Recurring Expenses			
Supplies/Expenses			
Library/learning resources			
Equipment/Technology	\$5,000	\$5,500	\$6,050
Travel			
Other			
Total Operating Costs	\$5,000	\$5,500	\$6,050
GRAND TOTAL COSTS	\$301,340	\$306,226	311,291

B. FUNDING SOURCES <i>(projected as appropriate)</i>	Current	First FY (New)	Second FY (New)	Third FY (New)
Tuition / State Funds		\$187,800	\$328,650	\$981,255
Student Fees		\$5,600	\$22,800	\$44,250
Other Sources				
GRAND TOTAL FUNDING		\$193,400	\$351,450	\$1,025,505
C. Projected Surplus/Deficit (+/-) (Grand Total Funding <i>minus</i> Grand Total Costs)		-\$107,940	+\$45,224	+\$714,214

IX. Expenditures and Funding Sources Explanations

A. Expenditures

Personnel – Reassigned or Existing Positions

All faculty are currently employed by the Department of Kinesiology in the College of Health and Human Sciences. The percent time dedicated to the program is based on the courses taught each year. However all Kinesiology courses for the Integrative Physiology degree, both in the core and electives are currently being offered by our department for the B.S. Kinesiology degree. Therefore, there is not an increased percent effort on our faculty time (other than the potential for increased class size). Expenditures in the table above, therefore, do not necessarily reflect added expenses to the university. Drs. Musch and Poole have dual appointments with the Department of Anatomy and Physiology at Kansas State University. It should be noted that each of the core faculty is internationally recognized as an expert in their respective discipline with two of the faculty (Musch, Poole) having the title of Kansas State University Distinguished Professor and one (Poole) having the title of Kansas State University Coffman Distinguished Teaching Scholar. An annual cost-of-living pay increase was included for each year.

Personnel – – New Positions

None

Start-up Costs – One-Time Expenses

None

Operating Costs – Recurring Expenses

This degree has substantial laboratory class time associated with it. Therefore, a modest \$5,000 (increased by 10%/annually) cost for equipment and technology is included. This would be covered by the current College of Health and Human Science course fee (\$20/student credit hour).

B. Revenue: Funding Sources

Student Fee explanation: The College of Health and Human Sciences has a \$20 per credit hour on all classes in the college. Revenue from this fee is used to support student services in the program (e.g., laboratory supplies, advising, scholarships, etc.).

The Department of Kinesiology has a \$15 per student credit hour on classes in the department. Revenue from this fee is used for instructional and advising support for the department.

C. Projected Surplus/Deficit

There are no new expenses for this degree as our listed faculty are currently already teaching the Kinesiology courses listed for this degree. The estimated expenses do not necessarily reflect “new expenses”. Therefore, any new students to the university that enroll in this degree would generate additional surplus revenue. As explained above, approximately 85% of our current Kinesiology majors (676) stated by survey that they were interested in a health career. We anticipate that initially the majority of current Kinesiology students would gravitate toward the Integrative Physiology degree. Our rationale of students in the degree above are based on a very conservative estimate of new students to Kansas State University who would enroll in this degree. Therefore, the projected surplus (or deficit in YR 1) for this degree we believe to be a very conservative estimate. Based on similar degrees from other institutions (e.g., University of Colorado), we anticipate that enrollment in this degree would be much higher than listed once we were able to market the degree to students interested in a health related career.

X. References

ASSESSMENT

Number	Detail	Course(s) for Assessment of Learning Outcome	Assessment Timeline:
1	Know/comprehend the structure and function of the human body as they relate to physical activity, fitness, and public health.	Kin 330, Kin 335, Kin 336, Kin 360, Kin 398, Kin 601, Kin 603, Kin 607, Kin 609, Kin 625, Kin 635	The performance criteria will be assessed each time the course is taught. SLO overall assessment will be based on an annual combination of all data.
2	Know/comprehend the biomechanical, physiological, behavioral, and sociological correlates of physical activity, fitness, and public health	Kin 220, Kin 320, Kin 330, Kin 335, Kin 336, Kin 345, Kin 398, Kin 591, Kin 592, Kin 594, Kin 601, Kin 607	The performance criteria will be assessed each time the course is taught. SLO overall assessment will be based on an annual combination of all data.
3	Comprehend, analyze, and interpret research related to the biomechanical, physiological, behavioral, and sociological correlates of physical activity, fitness, and public health.	Kin 310, Kin 335, Kin 336, Kin 345, Kin 398, Kin 601, Kin 603, Kin 605, Kin 607, Kin 609, Kin 635	The performance criteria will be assessed each time the course is taught. SLO overall assessment will be based on an annual combination of all data.
4	Know/comprehend the impact of physical inactivity on fitness and health in a societal context	Kin 591, Kin 592, Kin 594, Kin 602, Kin 603	The performance criteria will be assessed each time the course is taught. SLO overall assessment will be based on an annual combination of all data.
5	Identify, comprehend, and apply contemporary knowledge, principles, and research related to appropriate biophysical, social and behavioral correlates of physical activity, fitness, and public health.	Kin 310, Kin 320, Kin 330, Kin 398, Kin 600, Kin 602, Kin 607	The performance criteria will be assessed each time the course is taught. SLO overall assessment will be based on an annual combination of all data.
6	Synthesize and integrate knowledge, principles, and analytic methods from the study of social, behavioral and biophysical correlates of physical activity, fitness and public health in order to propose solutions and evidence-based interventions for relevant practical problems and issues.	Kin 310, Kin 330, Kin 398, Kin 594, Kin 605, Kin 635	The performance criteria will be assessed each time the course is taught. SLO overall assessment will be based on an annual combination of all data.
7	Retrieve and manage information effectively in the examination and communication of problems and issues related to physical activity, fitness, and public health	Kin 310, Kin 320, Kin 336, Kin 594, Kin 607, Kin 796	The performance criteria will be assessed each time the course is taught. SLO overall assessment will be based on an annual combination of all data.
8	Know/comprehend/value cultural differences related to physical activity, fitness, and public health.	Kin 600, Kin 602, Kin 603, Kin 609	The performance criteria will be assessed each time the course is taught. SLO overall assessment will be based on an annual combination of all data.

Plan for annual faculty review of outcome data:

Assessment data will be submitted by the responsible faculty to the program assessment committee prior to the beginning of classes the following semester. In January, the assessment

committee will meet to discuss any immediate concerns. Overall program assessment will be completed using materials collected throughout the academic year.

Catalog

Integrative Physiology (B.S.)

A total of 120 credit hours are required for graduation. The BS degree is obtained by following the curriculum of the College of Health and Human Sciences.

Integrative Physiology majors must take a minimum of 39 kinesiology hours that include 18 hours from the lower-level core, 12 hours of Foundational Integrative Physiology courses, 6 hours of Integrative Physiology electives and 3 hours of Kinesiology electives.

A minimum grade of C and GPA of 2.2 are required for all kinesiology courses meeting degree requirements.

General Requirements (46-48 Credit Hours)

Communications (8-9 credit hours)

ENGL 100 - Expository Writing I | Credits: 3

ENGL 200 - Expository Writing II | Credits: 3

One of the following courses

COMM 105 - Public Speaking IA | Credits: 2

or

COMM 106 - Public Speaking I | Credits:3

Humanities (6 credit hours)

Only courses of 3 credits or more will apply.

Social Sciences (9 credit hours)

ECON 110 - Principles of Macroeconomics | Credits: 3

PSYCH 110 - General Psychology | Credits: 3

SOCIO 211 - Introduction to Sociology | Credits: 3

Natural and Physical Sciences (16 credit hours)

BIOL 198 - Principles of Biology | Credits: 4

BIOL 341- Human Body I |Credits:4

AND

BIOL 342 – Human Body II |Credits:4

OR

KIN 360 - Anatomy and Physiology | Credits: 8

CHM 110- General Chemistry |Credits:3

AND

CHM 111-General Chemistry Lab | Credits: 1

OR

CHM 210- Chemistry I | Credits:4

Quantitative Studies (6-7 credit hours)

MATH 100 - College Algebra | Credits: 3

Or

MATH 150 – Plane Trigonometry | Credits:3

Or

MATH 220 - Analytic Geometry and Calculus I | Credits: 4

One of the following statistics courses

STAT 325 - Introduction to Statistics | Credits:3

STAT 340 - Biometrics I | Credits:3

Integrative Human Ecology Course (1 credit hour)

GNHE 210 - Foundations of Human Ecology | Credits: 1

Professional Studies (42) credit hours)

Grades of “C” or higher required.

Lower-Level core (18 credit hours)

KIN 220 - Biobehavioral Bases of Physical Activity | Credits: 4

KIN 310 - Measurement and Research Techniques in Kinesiology | Credits: 4

KIN 335 - Physiology of Exercise | Credits: 4

KIN 336 - Physiology of Exercise Lab | Credits: 1

KIN 345 – Exercise Behavioral Science | Credits: 5

Foundational Integrative Physiology Courses (Select 12 credit hours from below)

KIN 601 - Cardiorespiratory Exercise Physiology | Credits: 3

KIN 603 - Cardiovascular Exercise Physiology | Credits: 3

KIN 605 (3) – Topics in Kinesiology | Credits: 3

KIN 607 - Muscle Exercise Physiology | Credits: 3

KIN 611 – Neurological Exercise Physiology | Credits: 3

Integrative Physiology Electives

(Select 6 credit hours from below)

KIN 609 Environmental Physiology | Credits:3

KIN 615 Cardio/Comp Phys Health/Disease | Credits:3

KIN 617 Signaling Pathways in Phys | Credits:3

KIN 635 Nutrition and Exercise | Credits:3

Kinesiology Elective Courses 300 level or higher (3 credit hours)

KIN _____ - _____ | Credits 3

Human Nutrition (3 credit hours)

FNDH 400 Human Nutrition | Credits:3

Unrestricted Electives (30-32 hours)

Total hours required for graduation (120 credit hours)