KANSAS BOARD OF REGENTS
COUNCIL OF CHIEF ACADEMIC OFFICERS

MEETING AGENDA
Tuesday, September 8, 2020
10:45 – 11:45 a.m.
Or upon adjournment of SCOCAO

The Council of Chief Academic Officers (COCAO) will meet by video conference. The public is welcome to listen to the meeting in Suite 520, Curtis State Office Building, located at 1000 SW Jackson, Topeka, KS 66612. Questions can be emailed to arobinson@ksbor.org.

I.	**Call to Order**	Rick Muma, Chair	
	A. Roll Call		
	B. Approve Minutes from the June 17, 2020		p. 3
II.	**Requests**		
	A. First Readings		
	1. Master of Engineering in Bioengineering – KU	Barbara Bichelmeyer	p. 6
	B. Second Readings		
	1. Bachelor of Health Sciences - KU	Barbara Bichelmeyer	p. 23
	2. BA & BS in Integrated Computer Science – K-State	Chuck Taber	p. 33
	3. BS in Public Health – K-State	Chuck Taber	p. 45
III.	**Council of Faculty Senate Presidents Update**	Aleksander Sternfeld-Dunn, WSU	
IV.	**Other Matters**		
	A. Submission of Updated University Admissions Policies	Sam Christy-Dangermond	p. 54
	B. Recommended High School Courses for College Preparation	Daniel Archer	p. 59
	C. Discuss Collaborations with Chief Diversity Officers	Daniel Archer	
	D. Discuss Opportunities (new degree programs, partnerships, strategic initiatives, etc.) that Universities are Considering or Planning to Pursue in the Future	COCAO Members	

V.   Next COCAO Meeting – October 7th at 11:30am
- The University Press of Kansas Board of Trustees will meet upon adjournment via a separate video conference

VI.   Adjournment

Date Reminders:
- October: Apply Kansas College Application Month
- October 16: 2020 KCOG Virtual Conference
- October: 2020 Tilford Conference is Suspended

COUNCIL OF CHIEF ACADEMIC OFFICERS

The Council of Chief Academic Officers, established in 1969, is composed of the academic vice presidents of the state universities. The Board's Vice President for Academic Affairs serves as an ex officio member, and the member from the same institution as the chairperson of the Council of Presidents serves as chairperson of the Council of Chief Academic Officers. The chief academic officers of the University of Kansas Medical Center and Washburn University are authorized to participate as non-voting members when agenda items affecting those institutions are to be considered. The Council of Chief Academic Officers meets monthly and reports to the Council of Presidents. The Council of Chief Academic Officers works with the Board Academic Affairs Committee through the Vice President for Academic Affairs. Membership includes:

Rick Muma, Chair	WSU	Barbara Bichelmeyer	KU
Jill Arensdorf	FHSU	Robert Klein	KUMC
David Cordle	ESU	JuliAnn Mazachek	Washburn
Howard Smith	PSU	Daniel Archer	KBOR
Charles Taber	K-State		

Council of Chief Academic Officers
AY 2021 Meeting Schedule

Meeting Dates	Location	Lunch Rotation	Institution Materials Due	New Program Requests due
September 08, 2020 *10:45am or upon adjournment of SCOCAO	Video Conference		August 19, 2020	July 14, 2020
October 07, 2020 *11:30am, UPK after	*Conference Call for degree programs only*			August 12, 2020
November 18, 2020	ESU	ESU	October 28, 2020	September 23, 2020
December 16, 2020	Topeka		November 24, 2020	October 21, 2020
January 20, 2021	Topeka		December 30, 2020	November 18, 2020
February 17, 2021	Topeka		January 27, 2021	December 23, 2020
March 17, 2021	Topeka		February 24, 2021	January 20, 2021
April 14, 2021	FHSU	FHSU	March 24, 2021	February 24, 2021
May 19, 2021	Topeka		April 28, 2021	March 24, 2021
June 16, 2021	Topeka		May 26, 2021	April 21, 2021

Wednesday, June 17, 2020

The June 17, 2020 meeting of the Council of Chief Academic Officers was called to order by Chair David Cordle at 8:44 a.m. The meeting was originally scheduled to be held in Topeka. Due to the COVID-19 Pandemic, this meeting was held through Zoom and live streamed for the public.

In Attendance:

Members:	David Cordle, ESU	Jill Arensdorf, FHSU	Charles Taber, K-State
	Robert Klein, KUMC	Rick Muma, WSU	JuliAnn Mazachek, Washburn
	Barbara Bichelmeyer, KU	Howard Smith, PSU	Daniel Archer, KBOR
Staff:	Sam Christy-Dangermond	Amy Robinson	Travis White
	Karla Wiscombe	Erin Wolfram	
Others:	Brad Bennett, Colby CC	Jean Redeker, KU	Brian Niehoff, K-State
	Erin Shaw, Highland CC	Corey Isbell, NCKTC	Jerry Pope, KCKCC
	Alysia Starkey, K-State	Craig Harms, K-State	Graham Leach Krouse, K-State
	Linnea GlenMaye, WSU	Michelle Schoon, Cowley CC	Pedro Leite, Cloud County CC
	Ryan Ruda, Garden City CC	Stanton Gartin, Salina Tech	Steve Loewen, Flint Hills Tech
	Adam Borth, Fort Scott CC	Alek Sternfeld-Dunn, WSU	Aron Potter, Coffeyville CC
	Stuart Day, KU	Kim Morse, Washburn	Ryan Diehl, Hutchinson CC
	Mindy Markham, KU	Jane Holwerda, Dodge City CC	Joe McCann, Seward County CC
	Jason Sharp, Labette CC		

Chair David Cordle welcomed everyone.

Approval of Minutes
Howard Smith moved to approve the minutes of the May 14, 2020 special meeting, and Rick Muma seconded the motion. With no corrections or discussion, the motion passed.

Barbara Bichelmeyer moved to approve the minutes of the May 20, 2020 regular meeting, and Juli Mazachek seconded the motion. With no corrections or discussion, the motion passed.

1st Readings
- K-State is requesting a Bachelor of Science and Bachelor of Arts in Integrated Computer Science in the College of Arts and Sciences. This is a cross-college collaboration for students who want to attend a computer skills-based program which connects to various areas of interest with a focus in arts and sciences. Chuck Taber provided a brief overview of the program. No questions were presented by the Committee.

- K-State is requesting a Bachelor of Science in Public Health in the College of Health and Human Sciences/Kinesiology. This is an interdisciplinary program designed to address the growing need for public health workers. Chuck Taber provided an overview of the program. No questions were presented by the Committee.

- KU is requesting a Bachelor of Health Sciences in the School of Professional Studies at the Edwards Campus. Barbara Bichelmeyer introduced Stuart Day, the inaugural Dean. Stuart provided a brief

overview of the new program. This is an online completion degree and collaborated between KUMC and JCCC.

Juli Mazachek noted that Washburn University has a new Bachelor of Health Sciences degree online and she believes there is demand for these programs. She noted Washburn also has an articulation agreement with JCCC and hopes they can work together with KU. Rick Muma noted WSU offers a Health Science degree and asked for more information on how they are offering related courses online in terms of labs. Stuart stated he could provide further information on how they are accomplishing this.

No action is required for first readings. These three programs will be presented for a vote at the next COCAO meeting.

Other Requests

- K-State is requesting a name change of the Bachelor of Arts and Bachelor of Science in Fisheries, Wildlife, and Conservation Biology to Fisheries, Wildlife, Conservation, and Environmental Biology. Chuck Taber and Brian Niehoff were available for questions.

  Jill Arensdorf motioned to approve the name change, and Rick Muma seconded the motion. The motion passed unanimously by roll call vote.

- K-State is requesting approval to change the name of their School of Integrated Studies to the Department of Integrated Studies at their Polytechnic campus. They are also requesting to create a new Department of Aviation. Alysia Starkey gave a brief overview of the two requests. The Polytechnic campus currently operates under the School of Integrated Studies, which was created by combining a number of departments. These requests essentially separate the school into two academic departments. No questions were presented by the Committee.

  Barbara Bichelmeyer motioned to approve the two requests, and Jill Arensdorf seconded the motion. The motion passed by roll call vote.

- Barbara Bichelmeyer provided an overview of KU's requests to change three programs from a Master of Arts to a Master of Science. These changes better reflect degree requirements, which have significant research components, communicate these requirements, and better align with similar degree programs at other institutions. Barbara noted the department is not changing the name of the degrees but is seeking a change in the type of degree.

  KU is requesting approval to change their Master of Arts in Microbiology to Master of Science in Microbiology.

  KU is requesting approval to change their Master of Arts in Biochemistry & Biophysics to a Master of Science in Biochemistry & Biophysics.

  KU is requesting approval to change their Master of Arts in Molecular, Cellular, & Developmental Biology to a Master of Science in Molecular, Cellular, & Developmental Biology.

  Rick Muma motioned to approve the three requests, and Howard Smith seconded the motion. With no questions or further discussion, the motion passed unanimously by roll call vote.

Council of Faculty Senate Presidents Update

Aleksander Sternfeld-Dunn, WSU, is the new Faculty Senate President. Alek is the Director of the School of Music and has been with WSU for 10 years. Alek will provide an update at the next COCAO meeting. He noted

we are at the most trying time in the last 100 years and believes the faculty presidents and elected faculty representatives will be key to working together to change, adapt, and initiate as we all move forward.

Other Matters/New Business
- Barbara Bichelmeyer noted as KU moves forward with their pans for fall semester, they have created 10 design teams. These teams will address pandemic related issues with keeping in mind the goals of the new Strategic Plan. One of the new teams is called "Jayhawk Cloud" and builds on the Microsoft platform to create a cloud presence for all KU events, activities, groups, and offices. This will be key for those that cannot come back to campus to engage in campus life.

Adjournment
David noted the University Press of Kansas Board of Trustees will meet after adjournment of BAASC.

Committee members expressed appreciation for David's work as Chair and thanked him for his leadership.

Rick Muma moved to adjourn the meeting, and Jill Arensdorf seconded the motion. With no further discussion, the motion passed. The meeting adjourned at 9:19 a.m.

<div align="center">**Program Approval**</div>

I. General Information

A. Institution   University of Kansas

B. Program Identification
Degree Level: Master's
Program Title: Master of Bioengineering
Degree to be Offered: Master of Engineering
Responsible Department or Unit: School of Engineering
CIP Code: 14.0501
Modality: Face-to-Face
Proposed Implementation Date: Fall 2021

Total Number of Semester Credit Hours for the Degree: <u>30</u>

II. Clinical Sites: Does this program require the use of Clinical Sites? No

III. Justification

The Master of Engineering (ME) in Bioengineering reflects the mission statement of KU and its commitment "to lift students and society by educating leaders, building healthy communities and making discoveries that change the world". The program will educate leaders, will help build healthy communities, and will make discoveries through the work of these leaders.

The ME in Bioengineering degree is an efficient way for KU undergraduates and others with undergraduate degrees to obtain more in-depth background and credentials in bioengineering prior to seeking employment or while being employed. The degree will prepare graduates to be more effective in their careers in medicine, in established commercial firms, and with entrepreneurship in a start-up company. The general goals and objectives for the ME in Bioengineering degree are:

1. Provide students with an in-depth understanding of mathematics, engineering principles, physics, chemistry, physiology, and modern biology;

2. Train students to apply basic sciences to biological problems, using engineering principles;

3. Train students to apply bioengineering analysis to commercially relevant problems.

The ME degree is a coursework only master's degree, meaning it does not have a thesis option. It is identical to the existing Master of Science (MS) in Bioengineering degree at KU with the exception that the MS requires a thesis and a thesis defense examination, while the ME substitutes coursework credit hours for thesis credit hours. For many interested in a career in industry, the time required to write and defend a thesis are barriers to obtaining a Master's degree, making the ME an attractive option for some professionals.

The proposed ME degree is in response to the expanding Kansas City region biosciences community. The degree is designed to be more accessible and appealing to regional professionals whose focus is on working in industry and who are looking to further their education and improve their skills. To that end the ME in Bioengineering, like the MS, has the following six tracks available: Computational Bioengineering; Biomechanics & Neural Engineering; Biomedical Product Design & Development; Biomaterials & Tissue Engineering; Biomolecular Engineering; and Bioimaging.

Also, because KU does not offer an undergraduate Bioengineering/Biomedical Engineering degree, the ME in Bioengineering will be attractive to current undergraduates who are interested in the biomedical industry. The addition of the ME degree will provide another option that is more appealing to some students, and should increase KU's overall Master's applications for Bioengineering.

IV. Program Demand: Market Analysis

The national demand for biomedical engineering degrees in general and Master's degrees in Biomedical Engineering continues to grow by about 7% per year (Figure 1). The proposed degree targets science and engineering bachelor's degree holders who seek a career at the interface between science, medicine and engineering. Similar programs are in place at top academic institutions around the country (e.g. Johns Hopkins, Georgia Tech, Duke, etc.). While WSU also offers an MS in Bioengineering, there are currently no programs that offer a professional coursework-only ME Degree in Bioengineering or Biomedical Engineering at any academic institution in the state of Kansas, only two in the Big 12, and only three regionally.
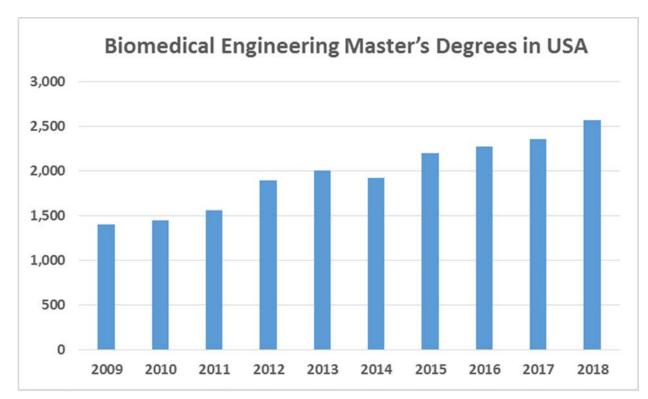
Figure 1. BME Master's Degrees Data from the American Society of Engineering Education July 2019 report for the 2017-2018 Academic Year.

KU has had strong demand for graduate degrees in Bioengineering, and applications for fall semester of 2020 hit an all-time high. Thus, the demand for Bioengineering/Biomedical engineering remains strong and growing. Enrollments in the past few years have been between 50 and 60 graduate students; about half of those are typically MS students. Nationally, the number of Master's degrees awarded in Biomedical Engineering has nearly doubled in the last 10 years, and we project that this expansion and growth will continue for the foreseeable future. The rate of increase is among the very fastest-growing interdisciplinary degree programs in the USA. Many potential graduate students do not seek the advanced degree because of the time required for research and writing of a Master's thesis. This ME degree will capture students focused on industrial positions and who are not seeking to complete a thesis. The degree could be completed within one year of fulltime coursework.

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

Year	Headcount Per Year		Sem Credit Hrs Per Year	
	Full- Time	Part- Time	Full- Time	Part- Time
Implementation	3	1	90	6
Year 2	4	2	120	18
Year 3	4	2	120	30

VI. Employment

KU's Bioengineering Graduate Program currently has a placement rate of over 95%. And even with the effects of the novel coronavirus, the job outlook is good. According to the US Bureau of Labor Statistics, the median salary of a bioengineer in 2019 was $91,410 per year (though the data does not account for level of degree).

Thus, Bioengineering is an appealing degree for the interesting area of work, the strong job market and the competitive compensation. According to the Wichita State University Center for Economic Development and Business Research employment forecast from October 2019, Kansas employment grew by only 0.5 percent in 2019, adding approximately 8,000 new jobs to the state economy, but is projected to contract due to novel coronavirus in 2020. The Bureau of Labor Statistics (BLS) still projects the job outlook for biomedical engineers to grow nationally by about the national average of 4% from 2018 to 2028 (OOH-BME, 2020), providing job opportunities for graduates.

Additionally, we expect many professional students in this program to be currently employed. These students will either work on their degree part-time or will take a leave of absence to complete the degree in one year on a full-time basis, and will have almost certain employment (and new internal and/or external opportunities) upon degree completion.

VII. Admission and Curriculum

A. Admission Criteria

Applicants will apply to the ME in Engineering and will include a personal statement detailing how this program will support the candidate's career goal(s), resume, and three letters of recommendation. In addition, the student must meet the requirements below.

- Overall undergraduate GPA: greater than 3.0 (out of 4.0)
- Complete a KU Graduate Application and submit official transcripts from each institution attended
- Bachelor's degree in engineering, the biological sciences, physical sciences, or a related field from an accredited post-secondary institution
- Have completed the following coursework *(typically completed as part of an undergraduate degree):*
  - Mathematics through differential equations and linear algebra (MATH 220 and MATH 290; or equivalents)
  - One year of calculus-based physics (through PHSX 212, or the equivalent)
  - One course in general chemistry (CHEM 150 or 130, or the equivalent)
  - One course in molecular/cell/human biology (BIOL 100 or BIOL 150, or the equivalent)
  - Additional coursework required for admission vary by program track and will be the same as the track admission requirements for the existing MS degree program. (Please see Attachment 1 for track-specific admission requirements.)
- International students must also meet KU's English proficiency, visa/I20, and financial support requirements.

B. Curriculum

Students select one of the six tracks for their primary exposure to bioengineering concepts. All the tracks have the same required core courses (total 6 credit hours): C&PE 756 Introduction to Biomedical Engineering, BIOE 800 Colloquium, and BIOE 801 Responsible Conduct of Research in Engineering. The course C&PE 756 Introduction to Biomedical Engineering, permits them to delve into the subject area of their track, but also allows the student to sample the breadth of bioengineering topics across all of the tracks. BIOE 800 Colloquium provides some professional development as well as additional exposure to the breadth of applications in bioengineering. While BIOE 801 Responsible Conduct of Research in Engineering, might seem less relevant for a professional coursework-only Master of Engineering degree, the focus on professional engineering ethics is quite applicable and important for individuals in industry, as well.

ME students work with an advisor familiar with their selected track area to develop a formal plan of study; each track has a track director and affiliated faculty. The student selects from among track courses to construct a comprehensive educational program that (a) takes advantage of the student's background, (b) builds and demonstrates academic skills, and (c) capitalizes on the strengths of the affiliated faculty. This approach follows a structure common to many of the top Bioengineering/ Biomedical Engineering graduate programs nationally.

Beyond the core courses, each track has 9 credit hours of required depth courses focused on the track, and an additional 15 credit hours of breadth courses. However, because of the varied nature of the tracks there are minor variations in core, depth, and breadth requirements between the tracks. (Please see Attachment 2 for track-specific requirements, and Attachment 3 for the master breadth course list)

Year 1: Fall   **SCH = Semester Credit Hours**

Course #	Course Name	SCH….
C&PE 756	Introduction to Biomedical Engineering	3
BIOE 800	Bioengineering Colloquium	1
BIOE 801	Responsible Conduct of Research in Engineering	1
	Track Depth Course	3
	Track Breadth Course	3
	Track Breadth Course	3

Year 1: Spring

Course #	Course Name	SCH….
BIOE 800	Bioengineering Colloquium	1
	Track Depth Course	3
	Track Depth Course	3
	Track Breadth Course	3
	Track Breadth Course	3

Year 1: Summer

Course #	Course Name	SCH….
	Track Breadth Course	3

Total Number of Semester Credit Hours..30

VIII. Core Faculty (defined by the program based on level of service and activity in the program)

Note: * Next to Faculty Name Denotes Director of the Program, if applicable

FTE: 1.0 FTE = Full-Time Equivalency Devoted to Program

Program administration will be the responsibility of KU's current Bioengineering Graduate Program. The MS and PhD degrees in Bioengineering and the proposed ME degree encompass courses and faculty from departments throughout the School of Engineering, the School of Pharmacy, the College of Liberal Arts and Sciences, and the KU Medical Center. No Bioengineering faculty affiliate has a primary appointment in Bioengineering, but each is affiliated with the Bioengineering Graduate Program based on their research areas, their desire to assist in program administration, and their desire to advise Bioengineering graduate students. Service to the Bioengineering program is considered to also be service to the primary department. Thus, the Bioengineering Program pays no salary to affiliated faculty. Administrative salary support is provided for the Bioengineering Director and the Graduate Studies Director, and full salary is provided for the Bioengineering student program coordinator (staff position) by the School of Engineering.

Faculty Name	Rank	Highest Degree	Tenure Track Y/N	Academic Area of Specialization	FTE to Proposed Program
Berkland, Cory	Full Professor	PhD	Y	Chemical & Petroleum Engr Dept	0
Brumberg, Jonathan	Associate Professor	PhD	Y	Speech-Language-Hearing Dept	0
DeKosky, Brandon	Assistant Professor	PhD	Y	Chemical & Petroleum Engr Dept	0
Dhar, Prajna	Associate Professor	PhD	Y	Chemical & Petroleum Engr Dept	0
Fischer, Ken*	Full Professor	PhD	Y	Mechanical Engineering Department	12.8%
Forrest, Laird	Full Professor	PhD	Y	Pharmaceutical Chemistry	0
Friis, Elizabeth	Full Professor	PhD	Y	Mechanical Engineering Department	0
Gehrke, Stevin	Full Professor	PhD	Y	Chemical & Petroleum Engr Dept	7.7%
Hutchison, Justin	Assistant Professor	PhD	Y	Civil, Environmental & Arch Engr	0
Luchies, Carl	Associate Professor	PhD	Y	Mechanical Engineering Department	0
Maletsky, Lorin	Full Professor	PhD	Y	Mechanical Engineering Department	0
McIff, Terence	Full Professor	PhD	Y	Orthopedics & Sports Medicine	0
Nudo, Randy	Full Professor	PhD	Y	Rehabilitation Medicine Department	0
Robinson, Jenny	Assistant Professor	PhD	Y	Chemical & Petroleum Engr Dept	0
Shontz, Suzanne	Associate Professor	PhD	Y	Electrical Engr & Computer Science	0
Soper, Steven	Full Professor	PhD	Y	Chemistry Department	0
Spencer, Paulette	Full Professor	PhD	Y	Mechanical Engineering Department	0
Candan Tamerler	Full Professor	PhD	Y	Mechanical Engineering Department	0
Wilson, Sara	Associate Professor	PhD	Y	Mechanical Engineering Department	0
Yang, Xinmai	Associate Professor	PhD	Y	Mechanical Engineering Department	0

Number of graduate assistants assigned to this program **0**

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	0	0	0
Administrators *(other than instruction time)*	8,348	8,348	8,348
Graduate Assistants	0	0	0
Support Staff for Administration *(e.g., secretarial)*	12,417	12,417	12,417
Fringe Benefits *(total for all groups)*	6,230	6,230	6,230
Other Personnel Costs	0	0	0
Total Existing Personnel Costs – Reassigned or Existing	26,995	26,995	26,995
Personnel – New Positions			
Faculty	0	0	0
Administrators *(other than instruction time)*	0	0	0
Graduate Assistants	0	0	0
Support Staff for Administration *(e.g., secretarial)*	0	0	0
Fringe Benefits *(total for all groups)*	0	0	0
Other Personnel Costs	0	0	0
Total Personnel Costs – New Positions	0	0	0
Start-up Costs - One-Time Expenses			
Library/learning resources	0	0	0
Equipment/Technology	0	0	0
Physical Facilities: Construction or Renovation	0	0	0
Other	0	0	0
Total Start-up Costs	0	0	0
Operating Costs – Recurring Expenses			
Supplies/Expenses	0	0	0
Library/learning resources	0	0	0
Equipment/Technology	0	0	0
Travel	0	0	0
Other	0	0	0
Total Operating Costs	0	0	0
GRAND TOTAL COSTS	26,995	26,995	26,995

B. FUNDING SOURCES *(projected as appropriate)*	Current	First FY (New)	Second FY (New)	Third FY (New)
Tuition / State Funds		39,955	57,436	62,430
Student Fees		2,626	3,774	4,103
Other Sources		0	0	0
GRAND TOTAL FUNDING		42,581	61,210	66,533
C. Projected Surplus/Deficit (+/-) (Grand Total Funding *minus* Grand Total Costs)		15,586	34,215	39,538

IX. Expenditures and Funding Sources Explanations

A. Expenditures

Personnel – Reassigned or Existing Positions

No new resources are required for instruction or to administer this degree program. The current Bioengineering Graduate Program Director, Graduate Studies Director and student program coordinator will administer this degree program, along with the existing Master of Science and Doctoral degree programs in Bioengineering. As such $1/3^{rd}$ of their salary for Bioengineering administration as described in the "Core Faculty" section of the proposal is assigned to the ME program. All courses are already/currently being offered as part of the existing degree programs.

Personnel – New Positions

No new positions are required for instruction or to administer this degree program.

Start-up Costs – One-Time Expenses

No new resources are required to initiate this degree program.

Operating Costs – Recurring Expenses

No new resources are required for operating costs of this degree program.

B. Revenue: Funding Sources

Funding for the program will be through tuition and student fees (with typically 50% of total student credit hours in Engineering, course fees $54.70 credit hour). We expect primarily Kansas residents and those qualifying for in-state tuition ($416.20/credit hour) will be interested in the program. We have conservatively estimated the number of students interested in the program and expect the program to meet KBOR minima requirements for enrollments and graduates within five years of inception.

C. Projected Surplus/Deficit

Our budget estimate indicates the degree program will run a surplus beginning in Year 1.

X. References

American Society of Engineering Education July 2019 report for the 2017-2018 Academic Year, https://www.asee.org/documents/papers-and-publications/publications/college-profiles/2018-Engineering-by-Numbers-Engineering-Statistics-UPDATED-15-July-2019.pdf.

Occupational Outlook Handbook: Biomedical Engineers (OOH-BME, 2020), https://www.bls.gov/ooh/architecture-and- engineering/biomedical-engineers.htm

Center for Economic Development and Business Research, Kansas Employment Forecast, https://www.cedbr.org/forecast-blog/forecasts-kansas/1696-economic-outlook-kansas-2020-may-revision

Attachment 1

Detailed Admissions Requirements

The application process is similar to many department degrees. Students will apply to the BIOE program for the Master of Engineering degree. The application will include a personal statement, resume, transcripts, and letters of recommendation. The Admissions Committee (five total members and chaired by the Program Director) reviews the applications. Because of the number of applications, not every Admissions Committee member will review all applicant files as a primary reviewer. Each application received primary review by no fewer than 3 members, and in some cases 4 or all 5 members. The Admission Committee members rate the application in several categories and provide comments that provide rationale for the rankings. After they have submitted their ratings and evaluations, they are allowed to see the ratings/evaluations of the other committee members. After reviews are all complete, the committee meets to discuss each application, and even members who are not primary reviewers provide input to the decision for admission or denial. Decisions are then communicated to the students.

Students accepted into the program must fulfill the standard admission requirements of the University of Kansas Graduate School. In addition, the student must meet the requirements below.

- Overall undergraduate GPA: greater than 3.00 (out of 4.0)

- Personal statement detailing how this program will support the candidate's career goal(s)

- Bachelor's Degree from an accredited post-secondary institution

- Applicants for the Master of Engineering degree. should have a baccalaureate degree in engineering, the biological sciences, physical sciences, or a related field.
  In addition, the student must meet the requirements below.
  - *General Coursework:*
    - ∞ Mathematics through differential equations and linear algebra (MATH 220 and MATH 290; or equivalents)
    - ∞ One year of calculus-based physics (through PHSX 212, or the equivalent)
    - ∞ One course in general chemistry (CHEM 150 or 184, or the equivalent)
    - ∞ One course in molecular/cell/human biology (BIOL 100 or BIOL 150, or the equivalent)
- Three letters of recommendation
- For applicants with degrees from non-USA institutions:
  - TOEFL – Scores commensurate with Graduate School requirements, or
  - IELTS – Scores commensurate with Graduate School requirements

In addition the following tracks have additional track-specific minimum undergraduate preparation (entrance) requirements.

Biomaterials & Tissue Engineering Track

One of the following three options:

1. Science of Materials: ME 306 or equivalent or ME 765 (as part of the graduate program)
2. Organic Chemistry or Biochemistry: CHEM 310/330, or equivalent (5)*.
3. Cell Biology: BIOL 150 or equivalent*

*BIOL 807 (as part of the graduate program) can satisfy both criterion 2 & criterion 3

Biomechanics & Neural Engineering Track

1. Statistics: MATH 365/465 (or equivalent) (3)
2. All of the following a-c or d:
    a. Statics: ME 211 (or equivalent)
    b. Dynamics: ME 320 (or equivalent)
    c. Mechanics of Materials: ME 311/CE 310 (or equivalent) (3)
    d. or ME 633 Basic Biomechanics (as part of the graduate program)
3. Science of Materials: ME 306 (or equivalent) (3);
   or ME 765 Biomaterials (can be as part of the graduate program) (3)
4. Computer Programming: ME 208/EECS 138/CPE 121 (or equivalent) (3).
5. Circuits/Electronics: EECS 316 & EECS 318 (or equivalent) (3)
   or Instrumentation: ME 455 (or equivalent) (3)

Biomedical Product Design & Development Track

1. Science of Materials: ME 306 (or equivalent) (3);
   or ME 765 Biomaterials (can be as part of the graduate program) (3).
2. Computer Programming: ME 208/EECS 138/CPE 121 (or equivalent) (3).
3. Engineering Design: ME 501, CPE 613, EECS 501 (or equivalent) (3).
4. One of the following three options:
    - Statics, Dynamics and Mechanics of Materials: ME 211, CE 201, ME 320, ME 311,
      CE 310 (or equiv.) or ME 633 (as part of grad program)
    - Circuits/Electronics Lab: EECS 316, EECS 318 or equiv. (3)
    - Fluids: ME 510, CPE 511, or equiv. (3) OR ME 756 (as part of grad program)

Computational Bioengineering Track

1. Programming Language: EECS 268 or equivalent (3)
2. One of the following four options:
    a. Data Structures: EECS 560 or equivalent (3)
    b. Statistics: MATH 65 or equivalent (3)
    c. Numerical Methods/Scientific Computing: MATH 581, EECS 639 or equivalent (3)
    d. Applied PDEs: MATH 647 or equivalent (3)

Attachment 2

KU BIOENGINEERING GRADUATE PROGRAM
The University of Kansas

Master of Engineering in Bioengineering
Track: Bioimaging

Proposed for students entering Fall 2021 and beyond

Track Director: Xinmai Yang, Ph.D. (xmyang@ku.edu)

CORE	6 hours required
CPE 756	Intro to Bioengineering (3)
BIOE 800	Bioengineering Colloquium (.5) (2 total hours req)
BIOE 801	Responsible Conduct of Research in Engineering (1)

DEPTH	9 hours minimum
PHSL 801-8	Anatomy and Physiology (1-4)
PHSL 848	Fundamentals of Biomedical Imaging (3)
ME 752	Acoustics
ME 754	Biomedical Optics
ME 758	Physiological Systems
EECS 639	Introduction to Scientific Computing (3)
EECS 721	RF Engineering/Antennas (3)
EECS 731	Introduction to Data Science (3)
EECS 739	Parallel Scientific Computing (3)
EECS 740	Digital Image Processing (3)
EECS 644	Intro to Digital Signal Processing (3)
EECS 744	Digital Signal Processing (3)
EECS 781	Numerical Analysis I (3)
EECS 782	Numerical Analysis II (3)
EECS 868	Mathematical Optimization with Applications (3)
EECS 869	Information Theory and Coding (3)
CPE 778	Applied Optimization Techniques (3)
BIOL 943	Multivariate Data Analysis (3)

BREADTH	15 hours minimum

Choose appropriate courses from the Master Breadth Course List.

MINIMUM HOURS REQUIRED FOR DEGREE: 30

No more than 3 classes may be taken at the 500-600 level and counted towards the graduate degree.

KU BIOENGINEERING GRADUATE PROGRAM
The University of Kansas

Master of Engineering in Bioengineering
Track: Biomaterials & Tissue Engineering

Proposed for students entering Fall 2021 and beyond

Track Director: Candan Tamerler, Ph.D. (ctamerler@ku.edu)

CORE	6 hours required
CPE 756	Intro to Bioengineering (3)
BIOE 800	Bioengineering Colloquium (.5) (2 total hours req)
BIOE 801	Responsible Conduct of Research in Engineering (1)

DEPTH	9 hours required

1. Advanced Engineering (2 course min)

ME 765	Biomaterials (3)
ME 767	Molecular Biomimetics (3)
ME 854	Continuum Mechanics of Soft Tissues (3)
ME 990	Advanced Biomaterials (3)
CPE 715	Drug Delivery (3)
CPE 715	Polymer Science & Technology (3)
CPE 751	Basic Rheology (3)
CPE 752	Tissue Engineering (3)
ME 790	Biomedical Microdevices (3)

2. Advanced Biological Sciences (1 course max)

ANAT 845 / BIOL 560	Histology (3)
MICR 808 / BIOL 503	Immunology (3)
MICR 825 / BIOL 512	Virology (3)
BIOL 612	Fundamentals of Microbiology (3)
BIOL 546	Mammalian Physiology (4)
BIOL 752	Cell Biology (3)
PHCH 860	Principles & Practice of Chemical Biology (3)

BREADTH	15 hours minimum

1. Math; Statistics; Numerical Methods (1 course min)
2. Sciences (1 course min)
3. Advanced Engineering (1 course min)

MINIMUM HOURS REQUIRED FOR DEGREE: 30

No more than 3 classes may be taken at the 500-600 level and counted towards the graduate degree.

KU BIOENGINEERING GRADUATE PROGRAM
The University of Kansas

Master of Engineering in Bioengineering
Track: Biomechanics & Neural Engineering

Proposed for students entering Fall 2021 and beyond

Track Director: Terence McIff, Ph.D. (tmciff@kumc.edu)

CORE	6 hours required
CPE 756	Intro to Bioengineering (3)
BIOE 800	Bioengineering Colloquium (.5) (2 total hours req)
BIOE 801	Responsible Conduct of Research in Engineering (1)

DEPTH	9 hours required

1. Mechanics (2 course min)

ME 633	Basic Biomechanics (3)
ME 722	Modeling Dynamics of Mechanical Systems (3)
ME 750	Biomechanics of Human Motion (3)
ME 751	Exp. Methods in Biomechanics (3)
ME 753	Bone Biomechanics (3)
ME 755	Computer Simulation in Biomechanics
ME 757	Biomechanical Systems (3)
ME 760	Biomedical Product Design (3)
ME 765	Biomaterials (3)
ME 854	Continuum Mechanics for Soft Tissues (3)
CPE 751	Basic Rheology (3)

2. Physiology/Computing/Signal Processing (1 course max)

ME 758	Physiological System Dynamics (3)
HSES 810	Advanced Exercise Physiology (3)
PHSL 800 or above	
EECS 639	Introduction to Scientific Computing (3)
EECS 739	Parallel Scientific Computing (3)
EECS 868	Mathematical Optimization with Applications (3)
EECS 644	Intro to Digital Signal Processing (3)
EECS 744	Digital Signal Processing (3)
EECS 861	Random Signals & Noise (3)

BREADTH	15 hours minimum

Choose appropriate courses from the Master Breadth Course List.

1. Advanced Engineering (700 or above) (1 course minimum)
2. Life Sciences (1 course minimum)
3. Math, Statistics, Numerical Methods (1 course minimum)

MINIMUM HOURS REQUIRED FOR DEGREE: 30

No more than 3 classes may be taken at the 500-600 level
and counted towards the graduate degree.

KU BIOENGINEERING GRADUATE PROGRAM
The University of Kansas

Master of Engineering in Bioengineering

Track: Biomedical Product Design and Development

Proposed for students entering Fall 2021 and beyond

Track Co-Directors: Lisa Friis, Ph.D. (lfriis@ku.edu) and Sara Wilson, Ph.D. (sewilson@ku.edu)

CORE	3 hours required
CPE 756	*Intro to Bioengineering - replaced with breadth course*
BIOE 800	Bioengineering Colloquium (.5) (2 total hours req)
BIOE 801	Responsible Conduct of Research in Engineering (1)

DEPTH	9 hours required

1. Fundamental Courses (6 credits)

ME 765	Biomaterials (3)
AND	
ME 760	Biomedical Product Design (3)

3. Design (3 credits)

ME 696	Design for Manufacturability (3)
ME 767	Molecular Biomimetics (3)
ME 790	Bioadditive Manufacturing (3)
ME 790	Biomedical Microdevices (3)
CPE 715	Drug Delivery (3)
CPE 715	Polymer Science & Technology (3)
AE 709	Structural Composites (3)
CE 710	Structural Mechanics (3)
EECS 644	Intro to Digital Signal Processing (3)
EECS 721	Antennas (3)
EECS 728	Fiber-Optic Measurement & Sensors (3)
EECS 739	Parallel Scientific Computing (3)
EECS 741	Computer Vision (3)
	or other Design course(s) as approved by committee

BREADTH	18 hours minimum

Choose appropriate courses from the Master Breadth Course List.

1. Math, Statistics, Numerical Methods (1 course minimum)
2. Advanced Engineering (700 or above) (1 course minimum)
3. Sciences (1 course minimum)
4. Management & Business (0 required, 1 course max)

MINIMUM HOURS REQUIRED FOR DEGREE: 30

No more than 3 classes may be taken at the 500-600 level and counted towards the graduate degree.

KU BIOENGINEERING GRADUATE PROGRAM
The University of Kansas

Master of Engineering in Bioengineering
Track: Biomolecular Engineering

Proposed for students entering Fall 2021 and beyond

Track Director: Prajna Dhar, Ph.D. (prajnadhar@ku.edu)

CORE	6 hours required
CPE 756	Intro to Bioengineering (3)
BIOE 800	Bioengineering Colloquium (.5) (2 total hours req)
BIOE 801	Responsible Conduct of Research in Engineering (1)
DEPTH	**6 hours required**
1. Advanced Engineering / Pharmaceuticals (1 courses min)	
CPE 701	Numerical Methods (3)
CPE 715	Drug Delivery (3)
CPE 715	Polymer Science & Technology (3)
CPE 731	Transport Phenomenon (3)
CPE 732	Advanced Transport Phenomena (3)
CPE 751	Basic Rheology (3)
ME 767	Molecular Biomimetics (3)
ME 790	Biomedical Microdevices (3)
PHCH 730/731	Biopharmaceuticals & Pharmacokinetics (3)
PHCH 862/863	Pharmaceutical Equilibruium (3)
PHCH 870	Advanced Pharmaceutical Biotechnology (4)
2. Advanced Biological Sciences	
PHCH 860	Principles & Practice of Chemical Biology (3)
CHEM 760	Intro to Chemistry in Biology (3)
MDCM 701	Biomedicinal Chemistry (3)
ANAT 845 / BIOL 560	Histology (3)
MICR 808 / BIOL 503	Immunology (3)
MICR 825 / BIOL 512	Virology (3)
BIOL 752	Cell Biology (3)
BREADTH	**18 hours minimum**

Choose appropriate courses with advisor from master list in the following categories:

1. Statistics (1 course min)
2. Sciences (1 course min)
3. Advanced Engineering (1 course min)

MINIMUM HOURS REQUIRED FOR DEGREE: 30

No more than 3 classes may be taken at the 500-600 level and counted towards the graduate degree.

KU BIOENGINEERING GRADUATE PROGRAM
The University of Kansas

Master of Engineering in Bioengineering
Track: Computational Bioengineering

Proposed for students entering Fall 2021 and beyond

Track Director: Suzanne Shontz, Ph.D. (shontz@ku.edu)

CORE	6 hours required
CPE 756	Intro to Bioengineering (3)
BIOE 800	Bioengineering Colloquium (.5) (2 total hours req)
BIOE 801	Responsible Conduct of Research in Engineering (1)

DEPTH	9 hours required

1. FUNDAMENTALS COURSE (1 course minimum)

EECS 639	Introduction to Scientific Computing (3)
EECS 730	Introduction to Bioinformatics (3)
EECS 731	Introduction to Data Science (3)
BINF 701	Computational Biology I (5) - cannot take w/ EECS 730

2. ELECTIVE COURSES (1 course minimum)

BINF 702	Computational Biology II (5)
EECS 660	Fundamentals of Computer Algorithms (3)
EECS 738	Machine Learning (3)
EECS 739	Parallel Scientific Computing (3)
EECS 740	Digital Image Processing (3)
EECS 837	Data Mining (3)
EECS 839	Mining Special Data (3)
ME 751	Experimental Methods in Biomechanics (3)
ME 755	Computer Simulation in Biomechanics (3)
ME 854	Continuum Mechanics for Soft Tissues (3)
ME 861	Theory of the Finite Element Method (3)
EECS 868 or CPE 778	Math Opt w/ Applications or Applied Opt. Methods (3)
CE 861	Finite Element Methods for Solid Mechanics (3)
AE 746	Computational Fluid Dynamics (3)
BIOL 952	Introduction to Molecular Modeling (3)
PRVM 868	Bioinformatics Driven Clinical Research (3)
BIOS/STAT 730	Applied Linear Regression (3)
BIOS/STAT 799	Introduction to Statistical Genomics (3)
BIOS/STAT 823	Introduction to Programming & Applied Stats in R (3)

BREADTH	9 hours required

Choose appropriate courses from the Master Breadth Course List.

1. Math, Statistics, Numerical Methods (1 course minimum)
2. Life Sciences (1 course minimum)
3. Advanced Engineering (700 or above) (1 course minimum)

MINIMUM HOURS REQUIRED FOR DEGREE: 30

No more than 3 classes may be taken at the 500-600 level and counted towards the graduate degree.

KU BIOENGINEERING GRADUATE PROGRAM
The University of Kansas

MATH, STATISTICS & NUMERICAL METHODS

Math
MATH 590	Linear Algebra (3)
MATH 596	Math in Biomedical Research (3) ◊
MATH 611	Fourier Analysis of Time Series (3) **S***
MATH 646	Complex Variable and Applications (3)
MATH 647	Applied PDEs (3)
MATH 648	Calculus of Variations (3) **S**
MATH 724	Combinatorial Mathematics (3) **F***
MATH 725	Graph Theory (3) **S***
MATH 750	Stochastic Adaptive Control (3) **S***
MATH 765	Mathematical Analysis (3) **F**
MATH 766	Mathematical Analysis II (3) **S**
MATH 790	Linear Algebra II (3) **F**
MATH 791	Modern Algebra I (3) **S**
MATH 865	Stochastic Processes I (3) **S**
PHSX 718	Mathematical Methods of Physical Sci (3) **F**
PHSX 721	Chaotic Dynamics (3) ***F**

Statistics
BIOL 570	Intro to Biostatistics (3) **F**
BIOL 841	Biometry I (5) **F**
BIOL 943	Multivariate Data Analysis (3) **F***
BIOS 714	Biostatistics - Fund Biostatics I (3) **F**
BIOS 717	Biostatistics - Fund Biostatics II (3) **S**
BIOS 720	Biostatistics - Analysis of Variance (3) **F**
BIOS 730	Biostatistics - Appld Linear Regression (3) **F**
BIOS 740	Biostatistics - Applied Multivariate Mthds (3) **S**
BIOS 810	Biostatistics - Clinical Trials (3) **S**
BIOS 835	Biostatistics - Categorical Data Analysis (3) **F**
BIOS 840	Biostatistics - Linear Regression (3) **F**
BIOS 871	Biostatistics - Mathematical Statistics (3) **F**
BIOS 830	Biostatistics - Experimental Design (3) **S**
ESPY 710	Introduction to Statistical Analysis (3) **F**
ESPY 711	Lab for Introduction to Stats Analysis (1) **F**
MATH 605	Applied Regression Analysis (3) **F***
MATH 627	Probability (3) **F**
MATH 628	Mathematical Theory of Statistics (3) **S**
MATH 727	Probability Theory (3) **F**
MATH 728	Statistical Theory (3) **S**

Numerical Methods
AE 725	Optimization and Structural Design (3) ◊
AE 746	Computational Fluid Dynamics (3) **S**
BINF 701	Bioinformatics I (5) **F**
BINF 702	Bioinformatics II (5) **S**
CE 861	Finite Element Mthds- Solid Mechanics (3) **S**
CPE 701	Methods of Chem and Petro Calculations (3) **F**
CPE 778	Optimization of Engineering Systems (3) **S**
EECS 639	Introduction to Scientific Computing (3) **F**
EECS 739	Parallel Scientific Computing (3) **S**
EECS 781	Numerical Analysis I (3) **F**

EECS 782	Numerical Analysis II (3) **S**
EECS 868	Math, Optimization with Applications (3) **F**◊
MATH 591	Applied Numerical Linear Algebra (3) **S***
MATH 780	Numerical Analysis of Linear Systems (3)
MATH 783	Applied Numerical Analysis of PDEs (3) **S**
MATH 881	Adv. Numerical Linear Algebra (3) **F**
MATH 882	Adv. Numerical Differential Equations (3) **S***
ME 702	Mechanical Engineering Analysis (3) **F**
ME 788	Optimal Estimation (3) **F** ◊
ME 860	Adv. Mechanical Engr. Problems
ME 861	Theory of the Finite Element Method (3) **F**
ME 862	Finite Element Mthd -Transient Analysis (3) **S***
ME 961	FEM for Nonlinear Probs in Solid Mech (3)****

ENGINEERING

All 700 + Engr courses count. Suggested courses include:
AE 709	Structural Composites (3) **F***
AE 781	Introduction Adaptive Aerostructures (3) **S**
CE 710	Structural Mechanics (3) **F***
CE 767	Intro to Fracture Mechanics (3) **S***
CPE 715	Polymer Science and Technology (3)
CPE 715	Drug Delivery (3) **S**
CPE 732	Advanced Transport Phenomena II (3) **S**
CPE 751	Basic Rheology (3) ****S**
CPE 752	Tissue Engineering (3)
CPE 778	Applied Optimization Techniques (3) **S***
EECS 644	Intro Digital Signal Processing (3) **F**
EECS 730	Intro to Bioinformatics (3)
EECS 731	Introduction to Data Science (3) **F**◊
EECS 738	Machine Learning (3)
EECS 739	Parallel Scientific Computing (3)
EECS 740	Digital Image Processing (3)
EECS 744	Digital Signal Processing (3) **S***
EECS 837	Data Mining (3)
EECS 861	Random Signals & Noise (3) **F**
ME 722	Modeling Dynamics of Mech. Sys. (3) **S***
ME 750	Human Motion Biomechanics (3) **F***
ME 751	Experimental Biomechanics (3) ****F**
ME 752	Acoustics (3) **S***
ME 753	Bone Biomechanics (3) ****S**
ME 754	Biomedical Optics (3) **S**
ME 755	Computer Simulation Biomechanics (3) **F***
ME 757	Biomechanical Systems (3) **S***
ME 758	Physiological Systems (3) **S***
ME 760	Biomedical Product Design (3) **S**
ME 765	Biomaterials (3) **F**
ME 767	Molecular Biomimetics (3)
ME 790	Biomedical Microdevices (3) ◊
ME 854	Continuum Mechanics for Soft Tissues (3) **S**
ME 890	Research Methods (3) **S**
ME 990	Advanced Biomaterials (3) **F**

BIOLOGICAL SCIENCES

ANAT 832	Electron Micro Tec (3)
ANAT 845	Histology (2)
BIOL 503	Immunology (3) **F**
BIOL 560	Histology (3) **S**
BIOL 600	Intro to Biochemistry (3)
BIOL 636	Biochemistry I (3) **F**
BIOL 637	Intro Biochemistry Laboratory (2) **F**
BIOL 638	Biochemistry II (3) **S**
BIOL 639	Advanced Biochemistry Laboratory (2) **S**
BIOL 644	Comparative Animal Physiology (3) **F***
BIOL 546	Mammalian Physiology (4)
BIOL 650	Advanced Neurobiology (3) **S**
BIOL 768	Plant Molecular Biology (3)
BIOL 673	Cell and Mol Neurobiology (3) **F***
BIOL 688	Molecular Biology of Cancer (3) **F**
BIOL 750	Advanced Biochemistry (3) *****S**
BIOL 752	Cell Biology (3) **F**
BIOL 754	Brain Diseases & Neurological Disorders (3)
BIOL 755	Mechanisms of Development (3) ◊
BIOL 757	Carcinogenesis & Cancer Biology (3) ◊
BIOL 772	Gene Expression (3) **S**
BIOL 775	Chemistry of the Nervous System (3) **S***
BIOL 841	Biometry I (3) **F**
BIOL 895	Human Genetics (3) **F**
BIOL 918	Modern Biochemical and Biophysical Mthds (4) **S**
BIOL 943	Multivariate Data Analysis (3) **F***
BIOL 952	Intro. Molecular Modeling (3) **S***
MICR 808	Immunology (3) **S**
MICR 812	Molecular Virology & Pathogenesis (2) **F**
MICR 820	Bact Genes & Pathogens (3) **S**
MICR 825	Virology (3) **S**
NURO 710	Advanced Neurobiology (3)***

CHEMISTRY (BIOCHEM, PHARM CHEM, MED CHEM)

CHEM 510	Biological Physical Chemistry (3) **F***
CHEM 635	Instrumental Mthds of Analysis (2) **S**
CHEM 718	Mathematical Mthds in Physical Sciences (3) **F**
CHEM 720	Fundamentals & Mthds Analyt. Chem (3) **F**
CHEM 740	Principles of Organic Reactions (3) **F**
CHEM 742	Spectroscopic Ident of Organic Comp (3) **SU**
CHEM 750	Intro to Quantum Mechanics (3) **F**
CHEM 760	Intro to Chemistry in Biology (3) **F**
CHEM 820	Analytical Separations (3) **F**
CHEM 824	Spectrochemical Mthds of Analysis (3)***
CHEM 828	Bioanalysis (3) **F**
CHEM 840	Physical Organic Chemistry (3) **S**
CHEM 852	Statistical Thermodynamics (3) **S**
CHEM 856	Molecular Spectroscopy (3)***
MDCM 701	Biomedicinal Chemistry (3) **F**
MDCM 703	Advanced Biomedicinal Chemistry (3) **S**
MDCM 790	Principles of Drug Design (3) **S**
MDCM 791	Principles of Drug Disposition (1) **S**
PHCH 718	Physcl-Chem Prin Solution Dsg Frm (3) **S**
PHCH 730	Biopharmaceutics & Pharmacokinetics (3) **F**

PHCH 775	Chemistry of the Nervous System (3) **S**
PHCH 850	Solid State Stability and Formation (3) ◊
PHCH 860	Principles & Practice in Chem Biol (3) **F**
PHCH 862	Pharmaceutical Equilibrium (3) **F**
PHCH 870	Advanced Pharm Biotechnology (4) **S***
PHCH 920	Chemical Kinetics (2) **S**
PHCH 972	Drug Stability (2-4) **S**
PHCH 974	Adv Topic: FTIR
PHCH 974	Adv Topic: Vaccines
PHCH 976	Adv Topic: Biopharmct & Pharmacokin I (3)

LIFE SCIENCES

GSMC 840	Clinical Observation for Bioengineers (3)
HSES 670	Intro to Biomechanics (3) **S**
HSES 672	Exercise Physiology (3)
HSES 805	Exp and Analysis – Exercise Phys (3) **F***
HSES 810	Advanced Exercise Physiology (3) **F***
HSES 825	Skeletal Muscle Physiology (3) **S***
HSES 872	Exercise & the Cardiovascular System (3) **S***
HSES 910	Biochemistry of Exercise (3) **S**
PHSL 835	Integrative Physiology of Exercise (3) **S***
PHSL 838	Advanced Topics – Fundamentals of Imaging
PHSL 844	Neurophysiology (3) **S***
PHSL 846	Advanced Neuroscience (5) **SU**
PHSL 847	Developmental Neurobiology (2)
PHSL 848	Mol Mechanisms Neurological Disord (3) **F***
REHS 862	Cell & Molecular Basis of Rehab (2) **F**
REHS 884	Motor Control & Learning (3) **F** ◊
REHS 887	Neurorehabilitation (3) **S**
REHS 970	Instrumental Analysis of Human Function (3) **F**

GRADUATE WRITING / ELECTIVE COURSES

SPLH 861	Applications in MATLAB Programming **SU**
ME 790	Graduate Writing (3) **SU**
PHCH 705	Writing & Communicating Science (3) **S**
PTRS 889	Grant Writing (3) **S**
PRVM 868	Biomed Informatics Driven Clinical Resch **S**
ENTR 701	Entrepreneurship (3)
ENTR 702	Financing Your Own Business (3)
ENTR 703	Marketing Your Own Business (3)
ENTR 704	Launching Your Own Business (3)
ENTR 850	Advanced Entrepreneurship (4)

KEY:

S: Spring	*****: biannually
F: Fall	*******: Infrequently
SU: Summer	Blue: KUMC Campus
◊: New course	

Please note these are all subject to change without notice.

Some courses outside of engineering may require a permission number from the course department. Contact the professor or the program assistant of that department for a permission number.

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University of Kansas-Edwards Campus

Bachelor of Health Sciences

<u>Program Approval</u>

</div>

I. General Information

A. Institution   <u>University of Kansas</u>

B. Program Identification
Degree Level: Bachelor's
Program Title: Health Sciences
Degree to be Offered: Bachelor of Health Sciences
Responsible Department or Unit: School of Professional Studies
CIP Code: 51.0000
Modality: Online
Proposed Implementation Date: Spring 2021

  Total Number of Semester Credit Hours for the Degree: 120

II. Clinical Sites: Does this program require the use of Clinical Sites? No

III. Justification

The School of Professional Studies at the KU Edwards Campus in Overland Park, in collaboration with KU Medical Center (KUMC) and Johnson County Community College (JCCC), proposes to create a new online undergraduate degree, the Bachelor of Health Sciences (BHS). The program is designed for undergraduate students with a strong interest in a career in health sciences who have already earned an associate's degree or equivalent hours and are looking to complete the last two years necessary for a bachelor's degree.

The BHS degree will be a Johnson County Education Research Triangle (JCERT) funded, 100% online completion degree for students transferring to KU Edwards. The BHS program will provide students with the opportunity to demonstrate their ability to succeed in courses with content relevant to their anticipated healthcare profession and elective courses will afford students the ability to concentrate in the following areas: Nutrition, Public and Population Health, and Health Management and Policy. The School of Professional Studies has specifically collaborated with the School of Medicine and the School of Health Professions at KUMC in developing an undergraduate health sciences degree that appropriately prepares students to enter the Masters of Public Health (MPH), Master of Science in Clinical Research (MSCR), or Masters in Health Service Administration (MHSA) programs in the Department of Population Health, and the Masters of Science in Dietetics and Nutrition in the Department of Dietetics and Nutrition.

With the KU Edwards campus offering baccalaureate degree completion programs, we anticipate students interested in pursuing the BHS to come primarily from community college partners in the KC metro area, including JCCC and Kansas City Kansas Community College, and the Metropolitan Community College in Missouri. As KU-Edwards does not offer lower-division undergraduate (freshman-sophomore) courses, KU Edwards staff and faculty have worked with staff and faculty at metro area 2-year colleges - primarily JCCC - to align course offering and content with KU requirements and needs for seamless transfer of credit and progression from JCCC to Edwards.

Over the past three years, KU Edwards, in collaboration with the dean and faculty of the Division of

Healthcare/Public Safety & Wellness at JCCC, and the Executive Director of the Masters in Public Health Program at KUMC have worked to identify and develop public health and health professional degree pathways beginning at the 2-year college level, continuing through the baccalaureate level, and leading to graduate level. Concurrently, JCCC has been developing a concept for a focus on public health at the associate's levels and KUMC have well-established and respected graduate programs. The newly developed BHS will allow a student to move seamlessly from the public health focus at the 2-year college level to a public health-oriented degree at the baccalaureate level that will in turn prepare the student for a variety of graduate education options as mentioned above. This BHS proposal is in part a product of those three-way discussions between these institutions.

IV. Program Demand: Market Analysis option selected.

A. Market Analysis

The Bureau of Labor Statistics reports that employment of healthcare occupations is projected to grow 19% from 2014 to 2024, much faster than the average for all occupations with the addition of 2.3 million new jobs. Employment related to healthcare will account for almost one-third of all new jobs in the nation between 2012 and 2022 according to the U.S. Department of Labor. This sector of the economy is anticipated to show the most robust growth across the US job market.

Within the Kansas City metro area, the Mid-America Regional Council (MARC) reported year over year employment change (January 2019-January 2020) for the Health Services sector of +0.6% with the addition of over 1,000 new jobs. (MARC, 2020). Additionally, MARC reported medical and health services managers was the top occupation sought with 1,458 positions listed during the last 90 day hiring trend based on January 2020 data.

The KU Edwards campus commissioned a market survey and analysis from WhiteSpace Consulting, a Kansas City-based firm, to assess the potential for a Bachelor of Health Sciences degree in the Kansas City metro area. WhiteSpace assessed the market for healthcare occupations, conducted roundtable discussions with potential students, and interviewed the program director of a BHS program in a comparable-sized metro area (the BHS program at Cleveland State University, Cleveland, Ohio, with ~1400 students enrolled in a BHS baccalaureate). Findings from the WhiteSpace market survey indicate that based on national data, student insights and a comparable university's enrollment experience, there is demand for a BHS program in the Kansas City region. The BHS Program Director at Cleveland State University considers relationships with pipeline/articulation agreement partners as critical success factors in developing and continuing enrollment demand. KU Edwards has taken these findings into account in the development, targeting, and curriculum of the proposed online BHS program (see also previous notes on the KUEC-JCCC collaboration, above).

In the Kansas City region, there are limited Bachelor of Health Sciences degree offerings including programs at University of Missouri-Kansas City, Northwest Missouri State University, and University of Missouri-Columbia. The curriculum for KU's BHS differs from these programs by giving students the opportunity to focus coursework on Nutrition, Public and Population Health, and Health Management and Policy. In-state options for undergraduate health science degrees include an on-campus program at Wichita State and an online program at Washburn University.

The KUEC program is distinguished by its close connections with JCCC (to minimize transfer chokepoints and issues), and by the collaboration with relevant KUMC programs (ensuring that the BHS provides graduates with the courses and skills necessary to advance to a graduate program). This bachelor's program was designed explicitly from the start with attention to the transfer students entering the program and the preparation of students to enter specific graduate programs. The degree will leverage strong multi-campus connections to academic and professional programs at KUMC and KU Lawrence to ensure the delivery of a high quality online degree completion program.

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

Year	Headcount Per Year		Sem Credit Hrs Per Year	
	Full- Time	Part- Time	Full- Time	Part- Time
Implementation	10	0	300	0
Year 2	10	10	600	150
Year 3	10	15	900	375

VI. Employment

National Perspective: The Bureau of Labor Statistics (BLS) reports that employment of healthcare occupations is projected to grow 19% from 2014 to 2024, much faster than the average for all occupations with the addition of 2.3 million new jobs. Employment related to healthcare will account for almost one-third of all new jobs in the nation between 2012 and 2022. This sector of the economy is anticipated to show the most robust growth across the US job market. Health science degrees can prepare graduates to take advantage of these expanding opportunities in many different health-related professions. The Department of Labor lists a total of 112 careers under its Health Sciences classification. Of these 112 careers, 88% are classified as "Bright Outlook," designating careers for which the Department of Labor projects 10% or greater employment increase between 2016 and 2026 or 100,000 or more job openings. BLS furthermore projects that nationwide, employment of medical and health services managers is projected to grow 18% from 2018 to 2028, much faster than the average for all occupations.

Regional Perspective: Within the Kansas City region the biomedical life sciences, including degrees in health administration and health related professions, is identified as one of five key industries and sectors by the Mid-America Regional Council (MARC) using employment and other economic data. Their 2019 Education Asset Inventory indicates talent must be developed for this sector to grow, and in some occupations the number of degrees awarded in the region does not meet demand. Jobs EQ notes total demand (replacement and growth) in this industry is expected to add 12,348 jobs in the Kansas City region over the next five years. Medical and Health Services Managers (BLS Code 11-9111), in particular, are projected for strong growth in Kansas (11% growth 2016-2026, 340 projected openings, with a mean annual salary of $108,000).

VII. Admission and Curriculum

A. Admission Criteria
Students must apply to KU Edwards and be admitted by the School of Professional Studies. Prior to entering the program, students must complete two (2) years of undergraduate college course work with a total of 60 semester credit hours and a cumulative GPA of 2.0.

B. Curriculum

The proposed Bachelor of Health Sciences program is unique because it draws upon coursework from multiple programs and disciplines. The flexible curriculum of this science program allows students to create an academic experience consistent with their healthcare career goals.

The proposed Bachelor of Health Sciences degree is comprised of six parts:
- KU Core Requirements: 24 credit hours
- Foundational Science Courses: 19 credit hours
    - BIOL 150 Principles of Molecular and Cellular Biology
    - BIOL 152 Principles of Organismal Biology

- CHEM 130 General Chemistry I
- MATH 101 College Algebra
- MATH 365 Elementary Statistics
- Health Sciences Core Courses: 32 credit hours
  - BIOL 240 Fundamentals of Human Anatomy
  - BIOL 246 Principles of Human Physiology
  - BTEC 310 Scientific Communications or HMGT 310 Health Communication
  - BTEC 501 Biotechnology Ethics and Responsible Conduct of Research or HSCI 488 Ethics in Health Professions
  - HSES 371 Medical Terminology for Health Professionals
  - HSCI 336 Microbiology in the Health Sciences
  - HSCI 340 Introduction to Public Health
  - HMGT 300 Introduction to Healthcare Management
  - HMGT 305 Health Policy & Healthcare Systems
  - HMGT 350 Professional Development in the Health Sciences
  - LA&S 172 Exploring Health Professions
- Health Science Elective Courses: 24 credit hours of the courses below
  - BIOS 704 Principles of Statistics in Public Health
  - EVRN 543 Natural Hazards and Environmental Risks
  - HSCI 320 Principles of Nutrition
  - HSCI 420 Nutrition through the Life Cycle
  - HSCI 421 Public Health Nutrition
  - HSCI 422 Nutrition Assessment
  - HSCI 440 Introduction to Epidemiology
  - HSCI 441 Population Health
  - HSCI 445 Introduction to Environmental Health
  - HSES 308 Drugs and Diseases in Society
  - HSES 310 Research and Data Analysis in Health, Sport, and Exercise Sciences
  - HSES 331 Sport and Exercise Nutrition
  - HSES 489 Health and Human Sexuality
  - SOC 424 Sociology of Health and Medicine
  - SOC 425 Sociology of Global Health
- Upper-Division General Electives or Minor
  - Eighteen (18) credit hours of upper-division courses (300+ level or above) are allocated for electives or for a minor
- Capstone
  - HSCI 599: Health Science Capstone (3 credit hours)

As noted earlier, since KU Edwards does not offer freshman-sophomore level courses the BHS is designed as an online degree completion program. Students are expected to complete the first two years at another campus, whether that be at one of our metro partners or elsewhere. Courses for Year 1 and 2 listed below are KU courses for which students will transfer in equivalent courses.

Year 1: Fall   SCH = Semester Credit Hours

Course #	Course Name	SCH: 15
CHEM 130	Foundations of Chemistry I (KU Core 3N)	5
MATH 101	College Algebra (KU Core 1.2)	3
BIOL 150	Principles of Molecular and Cellular Biology	4

ENGL 101	Composition (KU Core 2.1)	3

Year 1: Spring

Course #	Course Name	SCH: 16
COMS 130	Speaker-Audience Com (KU Core 2.2)	3
Core 3H	Arts and Humanities Course	3
BIOL 152	Principles of Organismal Biology (KU Core 3.2)	4
ENGL 102	Critical Reading and Writing (KU Core 2.1)	3
Core 1.1	Critical Thinking Course	3

Year 2: Fall

Course #	Course Name	SCH: 15
BIOL 240	Fundamentals of Human Anatomy	3
SOC 104	Elements of Sociology (KU Core 4.1)	3
Core 3S	Social Science Course	3
	Elective/ Minor Course	3
	Elective/ Minor Course	3

Year 2: Spring

Course #	Course Name	SCH: 15
LA&S 172	Exploring Health Professions	3
MATH 365	Statistics	3
BIOL 246	Principles of Human Physiology	3
Core 4.2	Culture, Diversity & Global Awareness	3
	Elective/ Minor Course	3

Year 3 and 4 courses are offered online at the KU Edwards campus.

Year 3: Fall

Course #	Course Name	SCH: 14
HSCI 340	Introduction to Public Health	3
HMGT 350	Professional Development in the Health Sciences	2
	Health Science Elective 1	3
BTEC 310	Scientific Communication	3
HMGT 300	Intro to Healthcare Management	3

Year 3: Spring

Course #	Course Name	SCH: 15
HSCI 336	Microbiology for Health Sciences	3
HMGT 305	Health Policy & Healthcare Systems	3
	Health Science Elective 2	3
	Health Science Elective 3	3
HSES 371	Medical Terminology	3

Year 4: Fall

Course #	Course Name	SCH: 15
	Health Science Elective 4	3
	Health Science Elective 5	3
	Health Science Elective 6	3
	Elective/ Minor Course	3
HSCI 488	Ethics in Health Professions (or BTEC 501)	3

Year 4: Spring

Course #	Course Name	SCH: 15
	Health Science Elective 7	3
	Health Science Elective 8	3
	Elective/ Minor Course	3
	Elective/ Minor Course	3
HSCI 599	Capstone, Internship, or Research Project (KU Core 6)	3

Total Number of Semester Credit Hours ……………………………………………. [120]

VIII. 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
New Faculty	Program Director	Ph.D.	N	TBD	1.0
Mark Jakubauskas	Director for Research and Innovation & Lecturer	Ph.D.	N	Environmental Studies, Environmental Health	0.25
Won Choi	Vice Chair & Professor	Ph.D.	Y	Public and Population Health	0.25
Sarah Kessler	Associate Professor	Ph.D.	Y	Public and Population Health	0.25
Danielle Christifano	Research Assistant Professor	Ph.D.	Y	Dietetics and Nutrition	0.25
Heather Gibbs	Assistant Professor	Ph.D., RD	Y	Dietetics and Nutrition	0.25
Brendan Mattingly	Lecturer & Program Director for MCDB	Ph.D.	N	Molecular, Cellular, and Developmental Biology (MCBD)	0.25
Benford Mafuvadze	Lecturer	Ph.D.	N	Molecular Biology	0.25
Jack Treml	Professor of Practice	Ph.D.	N	Biotechnology, Immunology	0.25

Randy Logan	Professor of Practice & Program Director for Biotechnology	Ph.D.	N	Biotechnology	0.25
Deb Sullivan	Professor & Chair, Dietetics & Nutrition	Ph.D.	Y	Dietetics and Nutrition	0.25

Number of graduate assistants assigned to this program **……………………………………… 0**

IX. 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	$30,000	$37,500	$45,000
Administrators *(other than instruction time)*	$27,500	$28,050	$28,611
Graduate Assistants			
Support Staff for Administration *(e.g., secretarial)*			
Fringe Benefits *(total for all groups)*	$12,557	$13,739	$14,933
Other Personnel Costs			
Total Existing Personnel Costs – Reassigned or Existing	$70,057	$79,289	$88,544
Personnel – New Positions			
Faculty	$90,000	$90,000	$90,000
Administrators *(other than instruction time)*	$30,000	$30,000	$30,000
Graduate Assistants			
Support Staff for Administration *(e.g., secretarial)*			
Fringe Benefits *(total for all groups)*	$30,913	$30,913	$30,913
Other Personnel Costs			
Total Existing Personnel Costs – New Positions	$150,913	$150,913	$150,913
Start-up Costs - One-Time Expenses			
Library/learning resources			
Equipment/Technology			
Physical Facilities: Construction or Renovation			
Other- Online Course Development	$15,000	$15,000	
Total Start-up Costs	$15,000	$15,000	$0
Operating Costs – Recurring Expenses			
Supplies/Expenses	$2,500	$2,500	$2,500
Library/learning resources	$500	$500	$500
Equipment/Technology			
Travel			

	First FY	Second FY	Third FY
Other	$11,400	$11,400	$11,400
Total Operating Costs	$14,400	$14,400	$14,400
GRAND TOTAL COSTS	$250,370	$259,602	$253,857

B. FUNDING SOURCES (*projected as appropriate*)	First FY (New)	Second FY (New)	Third FY (New)
Tuition / State Funds	$100,920	$252,300	$428,910
Student Fees	$34,965	$87,413	$148,601
Other Sources (JCERT)	$114,485	$0	$0
GRAND TOTAL FUNDING	$250,370	$339,713	$577,511
C. Projected Surplus/Deficit (+/-) (Grand Total Funding *minus* Grand Total Costs)	$0	$80,111	$323,654

X. Expenditures and Funding Sources Explanations

A. Expenditures
Personnel – Reassigned or Existing Positions

The BHS program utilizes existing courses that are currently offered at KU Edwards, such as Biotechnology, Nutrition, Public and Population Health, Environmental Health, Medical Terminology, and Molecular Biology. Cost of instruction will be covered by the existing program until additional offerings are needed. We anticipate needing additional BHS electives in Year 3. Existing KU faculty listed above will be developing and teaching new BHS elective courses once they are needed. New course development funds have been included in the budget. A current academic success coach will be assigned to work with the BHS program. The BHS program will make up 50% of their student load and the BHS program will fund 50% of salary and fringe.

Personnel – New Positions

The BHS program will be hiring a program director in the first year that will oversee program administration and will teach in the program. The program director's salary has been split between faculty teaching and administration at a rate of .75 and .25 or $90,000 for his or her faculty teaching responsibilities and $30,000 for program administration.

Start-up Costs – One-Time Expenses

In order to ensure a successful launch of the online program, we have designation $15,000 for online course development for each of the first two years. These funds will provide faculty with additional resources to

development the courses needed for the program.

Operating Costs – Recurring Expenses

All equipment, library, and supplies have been accounted for in the existing services provided to KU Edwards Students and no additional cost will be associated with the program. The KU Edwards Campus is allocating $500 each year for instructional resources, $2,500 each year for recruitment efforts, and $10,000 each year for marketing efforts. In addition, the program director will receive $1,400 each year for professional development.

B. Revenue: Funding Sources

The BHS program is a Johnson County Education and Research Triangle* (JCERT) funded program. The program will be fully funded through JCERT funds and tuition revenue. No state funds will be utilized. JCERT funds will be used to help fund the program during the implementation year until the program is revenue generating and sustainable on tuition funds alone. BHS students will be charged the standard KU Undergraduate tuition and then will be charged Edwards Campus and Course fees. The standard tuition rate for AY 2020 (and proposed for AY 2021) is $336.40 per credit hour for all Kansas residents and residents of 11 Missouri counties. Edwards Campus fee is $76 per credit hour and the course fee is $40.55 per credit hour. These are standard fees for all courses offered at the Edwards Campus.

* The Johnson County Education Research Triangle (JCERT) is a unique partnership between Johnson County, the University of Kansas and Kansas State University. Its goal is to create economic stimulus and a higher quality of life through new facilities for research and educational opportunities. In November 2008, Johnson County voters invested in the county's future by voting for a 1/8-cent sales tax to fund JCERT initiatives, including development of the National Food and Animal Health Institute at K-State Olathe; the KU Clinical Research Center in Fairway, Kansas; and here at KU Edwards, the BEST Building with several degree and certificate offerings in business, engineering, science and technology.

C. Projected Surplus/Deficit

Given the anticipated costs and revenue, the program is expected to run a deficit in the first year of implementation. JCERT funds will be used to help fund the program during the implementation year until the program is revenue generating and sustainable on tuition funds alone. With the current enrollment estimates, the BHS program is expected to have a revenue surplus. These funds will be utilized to help improve the overall student experience and provide additional funding

XI. References

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Kansas State University

Bachelor of Integrated Computer Science

<u>Program Approval</u>

</div>

I. General Information

A. Institution: <u>Kansas State University</u>

B. Program Identification

Degree Level:	Bachelor's
Program Title	Integrated Computer Science
Degree to be Offered:	Bachelor of Science & Bachelor of Arts in Integrated Computer Science
Responsible Unit:	College of Arts & Sciences
CIP Code:	11.0199
Modality:	Hybrid
Proposed Implementation:	Fall 2020

Total Number of Semester Credit Hours for the Degree: 120 (both BA and BS)

II. Clinical Sites: Does this program require the use of Clinical Sites? No

III. Justification

Integrated Computer Science (ICS) combines computer science with domain knowledge from some area of concentration. The degree integrates a concentration from any field of study outside of computer science with computational skills, complementary electives, and a capstone project applying those skills to the concentration area. Integrated Computer Science equips students for a wide variety of possible careers and to become academic, cultural, and industrial leaders who integrate an arts and sciences education with expertise in computer science.

With each passing year, computers play a larger role in our lives. Software shapes how we shop, communicate, vote, collaborate, and even how we think. However, the supply of software developers has not kept pace with demand, and many with computer skills lack the complementary skills that a broad education in the Arts & Sciences supplies: appreciation of aesthetics and design, understanding of our collective human history, insight into social, economic, and psychological effects of software design, and the ability to understand the dynamics of teamwork and cooperation in a software design workspace. At the same time, computational skills are increasingly important across the arts and sciences, in applications ranging from using live data streams to create cutting-edge art to computationally modeling complex biological processes. Indeed, many of our own faculty are re-skilling by learning computer coding to advance their research and creative activities.

What sets this program apart from others is a computer science track that is pragmatic rather than theoretical and based on algebra rather than calculus. This captures students who can benefit and excel within this program and encourages students to attain multi-disciplinary skill and expertise. It will be these unique and high-in-demand combinations that sets our students apart in the job marketplace and equips them to pursue their passions.

We envision graduates entering a wide range of fields, not merely as software engineers but as business leaders, scientists, artists, journalists, and scholars with the software engineering skills that are increasingly essential everywhere. We will produce artists who code, scientists leveraging algorithm-driven models, journalists who dig deep into big data, and entrepreneurs who design and prototype their ideas themselves. A combination of core competency in computer programming, database management, and algorithms along with a broad Arts and Sciences education will serve to create ethical leaders, smart citizens, and skilled employees for advancing the well-being of Kansas, the nation, and the world.

Specifically, this program will prepare students to:

- use in-demand programming languages and software design techniques to address real-world problems in a wide variety of fields;
- leverage programming and database integration skills to advance their career and contribute to their chosen field of concentration;
- consider the broader humanistic and scientific context of problems encountered in software development, and use appropriate domain knowledge to find solutions;
- enter the workforce with a solid core of in-demand computing skills, making them much more employable and effective; and
- understand and abide by the highest ethical standards of their profession and think clearly about the moral dimensions of their work.

IV. Program Demand: Market Analysis

The primary markets for this major include:

- on-campus students who wish to combine computer science with another field, as well as students who struggle with or dislike the advanced mathematics required for a pure computer science major; and

- online students pursing a cost-effective credential, including distance and transfer students with 60+ hours of college credit as well as alumni adding an additional degree that can build on (and accept credits from) their previous degree.

On-Campus Market Analysis: At Kansas State, there has been a 137% increase in computer science majors over the past decade, despite enrollment caps due to limited seating. Online demand, where physical seating is not a restriction, will to continue to grow. Furthermore, we have seen substantial growth in non-majors combining their chosen fields of study with computer science courses. Nearly 100 non-majors per year enroll in our introductory computer science course.

Across the nation from 2005 to 2015, in courses primarily intended for computer science majors, non-major enrollment grew faster than major enrollment. In introductory courses, major enrollment increased 152%, non-major enrollment by 177%. Similar trends hold for mid-level (majors: 152%; non-majors: 251%) and upper-level courses (majors: 165%; non-majors: 143%) (Computer Research Associates, 2017).
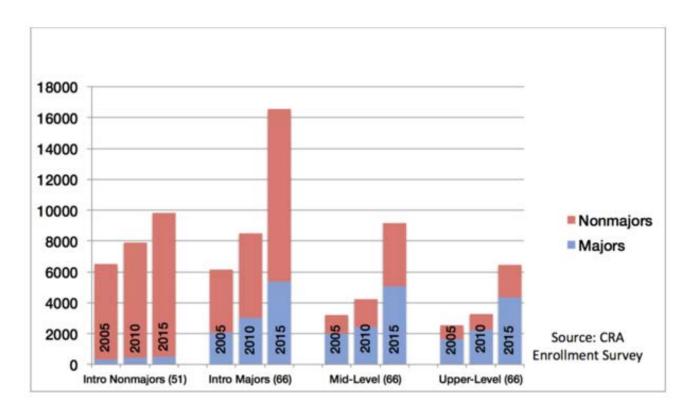
Figure 1. Cumulative nonmajor enrollment (red) and major enrollment (blue) in computing courses at doctoral- and non-doctoral granting units from 2005 to 2015.

(Source: Computer Research Associates, 2017)

We estimate that 150 on-campus students not majoring in Computer Science would pursue advanced courses in computer science, and that this number will increase.

Online Market Analysis:

Computer science is nationally one of the most popular areas of study for online students. According to a Babson/Learning House study of online student preferences, computer science is third among all desired undergraduate majors (Babson Survey Research Group, 2018). Business and psychology remain ahead, but their share of student interest has declined while the computer science share has increased, to 14% of the current total undergraduate online market.

The Educational Advisory Board (EAB) was tasked with finding the best opportunities for online program growth for Kansas State specifically. They identified bachelor's level Computer Science as the leading opportunity: *"Prioritize the development of online bachelor's-level computer science programming. The Forum finds computer science occupations most commonly require a bachelor's degree"* (EAB Global, 2018).

The online bachelor's degree market is not saturated. In 2018, IPEDS reported 27,553 completed computer science bachelor's degrees (EMSI, 2020). Only 6% of these completions were online. There are only 33 online competitors for bachelor's degrees in computer science in the nation.
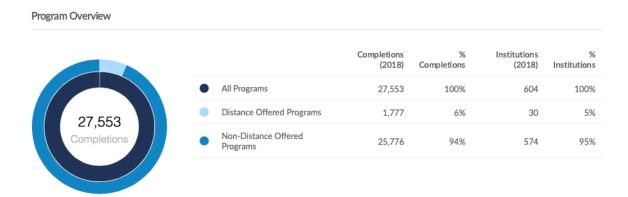
Program Overview

		Completions (2018)	% Completions	Institutions (2018)	% Institutions
●	All Programs	27,553	100%	604	100%
●	Distance Offered Programs	1,777	6%	30	5%
●	Non-Distance Offered Programs	25,776	94%	574	95%

27,553 Completions

Figure 2. EMSI Labor Analysis (EMSI, 2020)

EMSI labor analysis also indicated there are over 150,000 annual openings across the United States calling for a computer science background. This means there are *far* more new jobs each year than new degree holders to fill them.

Among the 33 online programs, IPEDS reports an average graduating cohort of 54 students. Programs most similar to ours are much larger. We expect our numbers to be in line with our peer institutions charted below (all are online programs):

Institution	Bachelor's Degree Completions	Growth % (2017)	Market Share (2017)
Oregon State University	495	58.1%	27.8%
University of Minnesota-Twin Cities	345	3.0%	19.4%
University of Utah	125	Insufficient Data	7.0%
University of Illinois at Springfield	96	(5.0%)	5.4%
Lewis University	73	108.6%	4.1%

The example of Oregon State University is notable, as they have the highest number of degree completions, as well as the fastest growth. Their model is similar to K-State's proposed model. They created an online "Professional Computer Science" degree, marketed to liberal arts majors who find themselves underemployed or seeking a different career. Students can complete only the core courses for the degree regardless of where they did their initial undergraduate program and can finish the program in as little as one year. Since inception in 2013, Oregon State has graduated over 900 students and shows a current growth rate of over 58%. They report nearly 1,500 students currently enrolled in the program (EMSI, 2020).
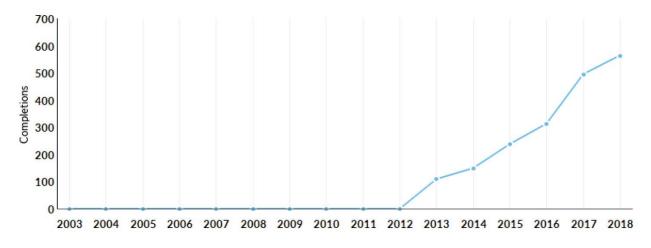
Figure 3. Oregon State University Completions in Computer Science (EMSI, 2020)

V. Projected Enrollment:

The numbers above suggest that we could have over 1,000 students enrolled in the program within four years. For this reason, we have prepared a scalable set of courses for all of our requirements that can accommodate a large influx of students as needed.

We have also performed several budget simulations based on much lower numbers to minimize our risk and examine the program viability. Our low estimates of enrollment are as follows:

Year	Headcount Per Year		Sem Credit Hours Per Year	
	Full- Time	**Part- Time**	**Full- Time**	**Part- Time**
Implementation	20	4	520	48
Year 2	30	6	1,440	120
Year 3	40	8	2,610	216

We believe this is a *very* conservative estimate for the students. We have contingency plans for the number of students enrolled in the ICS program to be much greater than the estimates described above. Due to our approach of using individualized, online instruction, the program can be expanded (or shrunk) very quickly. Instructors will be hired on term appointments and GTAs (and possibly undergraduate teaching assistants) will be hired one semester at a time.

VI. Employment

A 2018 market research brief from EAB found over 90,000 regional job listings in the field of computer science (EAB Global, 2018). Yet across the entire nation, we produce less than a third of that many computer science graduates. Importantly, 70% of those jobs are outside the traditional tech sector. Our students, with an ability to apply computer science to a wide range of fields, will be well-positioned for this emerging job market.

Table 1. Bureau of Labor Statistics for Software Developers

(U.S. Bureau of Labor Statistics, 2020)

2019 Median Pay	$107,510 per year
Typical Entry-Level Education	Bachelor's degree
Work Experience in a Related Occupation	None
On-the-job Training	None
Number of Jobs, 2018	1,365,500
Employment Change, 2018-28	284,100

Employers *in our region* posted **213%** more job openings for 'computer and information research scientists' in 2018 than in 2014. Job openings increased **65%** for 'information security analysts' (16,956 postings), **46%** for 'computer systems engineers/architects' (28,184 postings), and **45%** for 'software developers, applications' (104,201 postings) (U.S. Bureau of Labor Statistics, 2020).

The Bureau of Labor Statistics projects significant growth for related fields over the next eight years, as compared to a projected 7% national average for all occupations:

- **31%** for Software Developers
- **28%** for Information Security Analysts
- **19%** for Computer and Information Research Scientists
- **13%** for all computer occupations

Further, employers demonstrate high demand for related skills including Information security (20,713 job postings), Python (43,049), and Software development (75,277).

VII. Admission and Curriculum

A. Admission Criteria

Normal Kansas State University admissions criteria for incoming, transfer, and international students will apply for the proposed program. No additional criteria are included.

B. Curriculum

The curriculum consists of 29 credits in computer science, along with a 12-credit core in the College of Arts & Sciences that will introduce students to applications of computer science in the digital arts and humanities, the cultural impacts of technology, and moral reasoning and professional ethics in integrated computer science. In addition, all students must complete a concentration with at least 18 credits in a single field, or the interdisciplinary concentration. In the sample curriculum below, the concentration is in philosophy, and the degree is completed as a BS. Completion as a BA would require a foreign language requirement at the fourth level, and involve slightly different general education courses in social sciences and humanities, but would otherwise be similar.

Year 1: Fall   **Semester Credit Hours**

Course #	Course Name	SCH = 13
ENGL100	Expository Writing I	3
CC110	Introduction to Computing	3
CC210	Fundamental Programming Concepts	4
ANTH204	Introduction to Cultural Anthropology	3

Year 1: Spring

Course #	Course Name	SCH = 13
BIOL198	Principles of Biology	4
AMETH160	Introduction to American Ethnic Studies	3
CC310	Data Structures and Algorithms I	3
ENGL200	Expository Writing II	3

Year 2: Fall

Course #	Course Name	SCH = 17
PHILO386	Philosophy of Computer Science and Software Engineering	3
CC315	Data Structures and Algorithms II	3
CHM110	General Chemistry	3
COMM106	Public Speaking I	3
BIOL201	Organismic Biology	5

Year 2: Spring

Course #	Course Name	SCH = 16
PHILO305	Reasons, Decisions and Society	3
PHILO330	Moral Philosophy	3
CC410	Advanced Programming	4
POLSC135	Intro Comparative Politics	3
XXX	ELECTIVE	3

Year 3: Fall

Course #	Course Name	SCH = 15
CC510	Computer Systems Administration	3
PHILO303	Writing Philosophy	3
PHILO320	Symbolic Logic I	3
MATH205	General Calculus and Linear Algebra	3
PHILO492	Computers and Society	3

Year 3: Spring

Course #	Course Name	SCH = 14
PHILO345	Worlds, Things and Properties	3
PHILO301	History of Philosophy	3
CC560	Database Essentials	3
PHILO340	Justification and Reliable Knowledge	3
XXX	ELECTIVE	2

Year 4: Fall

Course #	Course Name	SCH = 17
CC535	Applied Data Science	3
MUSIC250	Music Appreciation	3
PHYS115	Descriptive Physics	5
ENGL603	Topics In Linguistics	3
XXX	ELECTIVE	3

Year 4: Spring

Course #	Course Name	SCH = 15
ENGL326	Introduction to the Digital Humanities	3
PHILO510	Symbolic Logic II	3
HIST311	Race and US Foreign Relations	3
CC590	Topics in Applied Computer Science	3
XXX	ELECTIVE	3

Total Number of Semester Credit Hours ………………………………………………………..120

VIII. Core Faculty   FTE: 1.0 FTE = Full-Time Equivalency Devoted to Program

The core faculty for the Integrated Computer Science program consists of Dr. Michael Wesch (who will also be the program administrator), core faculty from Arts & Sciences who teach the core ICS A&S courses, and five faculty from Computer Science. There will be many more faculty involved that are not included here who are already teaching other degree courses as part of existing programs. These faculty represent the core faculty who will meet regularly to guide and assess the program.

Faculty Name	Rank	Highest Degree	Tenure Track Y/N	Academic Area of Specialization	FTE to Proposed Program
* Michael Wesch	Professor	PhD	Y	Anthropology	0.25
Graham Leach-Krouse	Associate Professor	PhD	Y	Philosophy	0.125
Mark Crosby	Associate Professor	PhD	Y	English	0.125
Ryan Klataske	Instructor	PhD	N	Anthropology	0.125
Russell Feldhausen	Instructor	MS	N	Computer Science	0.375
Emily Alfs-Votipka	Instructor	MS	N	Computer Science	0.375
Joshua Weese	Teaching Assistant Professor	PhD	N	Computer Science	0.125
Lior Shamir	Associate Professor	PhD	Y	Computer Science	0.125
Nathan Bean	Instructor	MS	N	Computer Science	0.125

* Denotes Program Administrator

Number of graduate assistants assigned to this program …………………… 3 (after YR 2)

IX. Expenditure and Funding Sources

A. EXPENDITURES	First FY	Second FY	Third FY
Personnel – Reassigned or Existing Positions			
Faculty	$146,295	$149,221	$152,205
Administrators *(other than instruction time)*	$19,662	$20,956	$21,255
Graduate Assistants	$32,000	$40,800	$49,939
Support Staff for Administration *(e.g., secretarial)*	$12,000	$12,240	$12,485
Fringe Benefits *(total for all groups)*	$58,466	$61,229	$63,747
Other Personnel Costs			
Total Existing Personnel Costs – Reassigned or Existing	$268,423	$284,446	$299,631
Personnel – – New Positions			
Faculty			
Administrators *(other than instruction time)*			
Graduate Assistants			
Advising (.5 FTE)	$30,000	$30,600	$31,212
Fringe Benefits *(total for all groups)*			
Other Personnel Costs			
Total Existing Personnel Costs – New Positions	$30,000	$30,600	$31,212
Start-up Costs - - One-Time Expenses			
Library/learning resources	-	-	-
Equipment/Technology	-	-	
Physical Facilities: Construction or Renovation	-	-	-
Total Start-up Costs	$0	$0	$0
Operating Costs – Recurring Expenses			
Supplies/Expenses	$6,300	$12,600	$21,000
Library/learning resources	$6,250	$6,250	$6,250
Equipment/Technology	-	$25,000	$25,000
Travel	-	-	-
Codio (online learning platform) Fees	$2,642	$6,528	$11,543
Total Operating Costs	$15,192	$50,378	$63,793
GRAND TOTAL COSTS	$313,615	$365,424	$394,636

B. FUNDING SOURCES (projected as appropriate)	Current	First FY (New)	Second FY (New)	Third FY (New)
Tuition / State Funds		$177,812	$487,500	$883,125
Student Fees		$46,902	$128,153	$232,287
Other Sources (Global Campus)		$16,974	$46,338	$84,004
GRAND TOTAL FUNDING		$241,688	$661,991	$1,199,416
C. Projected Surplus/Deficit (+/-) (Grand Total Funding minus Grand Total Costs)		($71,927)	$296,567	$804,780

X. Expenditures and Funding Sources Explanations

A. Expenditures

Personnel – Reassigned or Existing Positions

All core faculty are currently employed by Kansas State University in the College of Arts & Sciences or College of Engineering. All ICS faculty teach either the core computer science courses (CC 110, CC 210, CC 310, CC 315 and CC 410) or advanced courses (CC 500 and above). Computer Science faculty who teach the core courses (Feldhausen and Alfs-Votipka) teach only online computational core courses, which are used in this degree. Faculty who teach advanced computer science courses (with the exception of Feldhausen) split their teaching time between the traditional Computer Science program and the Integrated Computer Science program (at approximately 33% devoted to integrated computer science courses). All core Computer Science faculty except for Shamir and Weese are already assigned to teach the listed courses as part of their current appointments. Shamir and Weese will start teaching their new courses in year 2. Shamir is already scheduled to increase his teaching load by one course in 2021-2022 and Weese will have additional capacity due to the phasing out of an existing course. No additional faculty or instructor hires are required to initiate or maintain the new program unless program enrollment grows substantially. The percent time dedicated to the program varies by faculty member and the courses taught each year by applying a general rule of 0.125 FTE per in-person course or 0.0625 FTE per online course for 9-month faculty and 0.0417 FTE per online course. Dr. Michael Wesch will assist the Dean of the College of Arts and Sciences in administering the program. This effort is included in the faculty salary line of the budget as one summer month of pay each year. For budgeting purposes, all salaries (faculty, graduate teaching assistants, and administrative support) include a modest 2% pay increase after the first fiscal year.

Computer Science graduate teaching assistants (GTAs) will be required for all computer science courses greater than 20 students, with additional GTAs required for every additional 40 students. Computer science programs and projects are similar to English compositions and works of art in that each are unique and require a great deal of effort to understand and to provide feedback for. Computer Science GTAs are typically paid between $650 and $800 biweekly (depending on degree status). In addition, undergraduate teaching assistants (UTAs) are often used to work with students one-on-one during laboratory help sessions and can be used to help reduce the number of GTAs required per course. UTAs have proven to be very effective in this role as they recently were taking the same courses and struggling with the same concepts. UTAs are normally paid between $11 and $15 per hour.

Personnel – New Positions

The budget includes support for an advisor position in the College of Arts and Sciences at .5 FTE. This is appropriate support for an estimate of up to 100 majors in the first three years. Adjustments may be necessary to accommodate further growth.

Start-Up Costs – One-Time Expenses

There are no additional one-time startup expenses associated with the program.

Operating Costs – Recurring Expenses

The cost of the Codio (computer science specific) online learning platform is $48 per student per semester. This cost will be covered by an existing $19 per credit hour College of Engineering Equipment Fee that is charged to all students taking computer science courses.

B. Revenue: Funding Sources

The following revenue table assumes that approximately 76% and 24% of all semester credit hours (SCH) are generated by the College of Arts and Sciences (COAS) and the College of Engineering (COE) respectively. All courses from the COE are online and offered through K-State's Global Campus, hence the "hybrid" modality of this proposed degree program.

This analysis assumes that all students will be on-campus students, although the program can be taken completely or partially online. Thus, it is highly likely that there will also be students who will be taking the program online, including both COAS and COE courses. These students will generate even more revenue than our analysis shows.

COAS has a general fee of $16.70 per credit hour for on-campus courses, while the COE has a general fee of $80 per credit hour, equipment fee of $19 per credit hour, and distance education fee of $190.70 per credit hour. All funds generated by fees will be retained by the generating college depending on the specialization chosen by the student, this percentage could change and may involve courses from additional KSU colleges such as the College of Agriculture, College of Architecture, Planning, and Design, College of Business, College of Veterinary Medicine, and/or Staley School of Leadership Studies. The fee structures for these schools are not factored into this budget analysis.

Tuition & Fees	Tuition /SCH	YR 1 SCH= 568	Sub-Totals	YR 2 SCH= 1560	Sub-Totals	YR 3 SCH= 2826	Sub-Totals
In-State On-Campus Tuition	$312.50	432	$135,000	1186	$370,625	2148	$671,250
Global Campus Tuition	$312.50	137	$42,812	374	$116,875	678	$211,875
COAS Fees	$16.70	432	$7,214	1186	$19,806	2148	$35,871
COE Fees	$99.00	137	$13,563	374	$37,026	678	$67,122
COE GC Fees	$190.70	137	$26,125	374	$71,321	678	$129,294
Global Campus Fees	$123.90	137	$16,974	374	$46,338	678	$84,004
Total Revenue			$241,688		$661,991		$1,199,416

C. Projected Surplus/Deficit

Our estimate suggests that this program will be highly profitable from the second year due to the use of existing courses and the hybrid delivery approach. Projected surpluses are also sufficient to maintain appropriate IT support infrastructure throughout the lifetime of the program at no additional cost to the university.

XI. References

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Kansas State University

Bachelor of Public Health

Program Approval

I. General Information

A. Institution   Kansas State University

B. Program Identification
Degree Level: Bachelor's
Program Title: Public Health
Degree to be Offered: Bachelor of Science
Responsible Department or Unit: College of Health and Human Sciences/Kinesiology
CIP Code: 51.2299
Modality: Hybrid
Proposed Implementation Date: Spring 2021

   Total Number of Semester Credit Hours for the Degree: 120

II. Clinical Sites: Does this program require the use of Clinical Sites? no

III. Justification

Public health promotes and protects the health of people and the communities where they live, learn, work and play. Public health-trained workers play a key role in addressing challenges facing the health of the public, such as infectious disease outbreaks, obesity and mental health issues, and drug and alcohol addictions. While a doctor treats people who are sick, public health professionals often work to prevent people from getting sick or injured in the first place, and promote wellness by encouraging a variety of healthy behaviors. Despite the increase in public health challenges there is a shortage of qualified public health workers. There are many individuals who are currently employed at local health departments or in healthcare professions who do not yet have a bachelor's degree but would benefit from a degree in public health. In local public health departments across Kansas, 49% of employees have less than a bachelor's degree. Further, a recent state-wide analysis of public health competencies found that the lowest proficiency rating across all tiers for both local health departments and the Kansas Department of Health and Environment was public health science skills, followed closely by policy development/program planning, analytical and assessment skills, and cultural competency (Kansas Public Health Workforce Development Coordinating Council, 2015).

Nationally in 2018, an economic modeling market analysis of 50 existing public health bachelor degree programs found that 70% experienced program growth, with an average growth rate of 37% (top growth was 533% at Southern New Hampshire University. Since only 22% of the 143 institutions offering undergraduate public health programs offered courses online, offering a hybrid program that includes online and in-person course offerings will increase the competitiveness of our program (Emsi, 2020).

Currently, there are limited Bachelor of Science in Public Health (BSPH) degree programs offered regionally. One Nebraska institution and four institutions in Missouri offer BSPH degrees, but there are no BSPH programs in the state of Kansas. Other Kansas institutions offer related degrees such as community health (BSE at the University of Kansas), health science (BHS at Washburn and BS degree at Wichita State University; they also have a minor in public health), or health and human performance (BS at Fort Hays State University). More recently, KU has proposed a BHS (5/28/20). Noteworthy, none of the above mentioned programs include courses

that capture all key domains of undergraduate public health education (Association of Schools & Programs of Public Health, 2012). Our proposed program includes a core set of fundamental public health courses, a 3-course practicum series that provides real-world exposure to public health practice, reinforcing public health electives, and the flexibility to choose additional coursework electives. Thus, we anticipate that the BSPH at Kansas State will attract many new students with public health and other health related career interests to the university. Furthermore, as a collaborative degree with courses offered across multiple departments and colleges, the BSPH program will benefit multiple units and foster cross-campus collaborations. As well, the program has been designed to seek future accreditation by the Council on Education for Public Health.

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

A. Survey of Student Interest (Not Conducted)

B. Market Analysis

The growth outlook for public health careers is excellent. A public health major provides entrance into a public health career in two fundamental paths through direct employment into entry level public health jobs and as a pathway to graduate level training in public health and other health related fields such as medicine, hospital administration and health policy (Evashwick, Tao, & Arnold, 2014). The U.S. Bureau of Labor Statistics (2020) forecasts growth between 5-25% nationally and 10.7% in Kansas for many of the more popular public health career areas over the next 5 years. These include community health workers, health educators, occupational health and safety specialists, medical and health services managers, and fitness and wellness coordinators. Key skills in demand include public health management, operations, leadership, and coordinating customer service. Consequently, national public health workforce groups such as the National Consortium for Workforce Development and the de Beaumont Foundation (2015) have called for the development of effective and engaging public health training and academic curricular offerings to prepare public health workers with strategic skills and expertise to meet the growing public workforce demand.

To assess local need for a BSPH degree, we distributed a brief survey at two conferences: the Kansas Governor's Public Health Conference (Wichita, KS) in April 2019 and the National Health Outreach Conference (Fort Worth, TX) in May 2019. Survey respondents were primarily public health professionals in Kansas (e.g., employed at county health departments). The first survey question asked if there was a need for a BSPH program in the state of Kansas. A total of 65 responses were collected between the two locations; of these, 49 (75%) said "Yes," four (6%) said "No," and 12 (18%) were "Unsure." Respondents indicated they saw a "big need" for more trained public health professionals and that a BSPH program would be a "tremendous asset" to the state of Kansas. They also emphasized the importance of offering flexible course options (e.g., online or evening courses) to accommodate working professionals interested in obtaining the degree.

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

Year	Headcount Per Year		Sem Credit Hrs Per Year	
	Full- Time	Part- Time	Full- Time	Part- Time
Implementation	20	0	680	0
Year 2	30	0	1,650	0
Year 3	40	0	2,845	0

VI. Employment

As mentioned above, the U.S. Bureau of Labor Statistics (2020) has documented a high demand for professionals skilled in public health. In addition, there is a large need for educated health professionals nationally and in the state of Kansas, particularly in rural areas of Kansas. The shortage of public health workers is expected to grow as many individuals in the public health field have plans to retire in the next 10 years.

The most common careers for students with a bachelor's degree in public health are research and community education. There is increasing demand both nationally and in Kansas for individuals in the following related positions (U.S. Bureau of Labor Statistics, 2020):
- Health Specialties Teachers, Postsecondary (+26% nationally, +23% in Kansas)
- Community Health Worker (+18% nationally, +10% in Kansas)
- Health Educator (+15% nationally, +10% in Kansas)
- Occupational Health and Safety Specialists (+8% nationally, +6% in Kansas)
- Fitness and Wellness Coordinators (+11% nationally, +5% in Kansas)

Public Health employment titles and median national annual wages include Health Educator: $53,940; Environmental Scientists and Specialists: $69,400; and Emergency Management and Preparedness Coordinator: $72,760. Overall, the U.S. Bureau of Labor Statistics (2020) forecasts 5-25% growth in many of the more popular public health careers between 2020 and 2024.

At the state of Kansas Department of Health and Environment (KDHE), there are 36 different employment titles aligned with public health (*personal communication with KDHE human resources*). Mean annual wages for Kansas KDHE employees by section range from $41,988 to $57,283. Of note in 2017, 84.2% of local health department employees in Kansas and 74.6% of KDHE employees had a bachelor's degree or less (Kansas Public Health Workforce Development Coordinating Council, 2019). Thus, offering this degree increases the level of education and expertise available in Kansas as well as income potential for graduates.

VII. Admission and Curriculum

A. Admission Criteria

Admissions criteria will be the same as for the B.S. in Kinesiology and include the 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

B. Curriculum

Year 1: Fall   SCH = Semester Credit Hours

Course #	Course Name	SCH = 17
KIN 110	Introduction to Public Health	3
BIOL 198	Principles of Biology	4
PSYCH 110	General Psychology	3
ENGL 100	Expository Writing I	3

SOCIO 211	Introduction to Sociology	3
HHS 101	Introduction to Well-Being	0.5
HHS 201	Community Well-Being	0.5

Year 1: Spring

Course #	Course Name	SCH = 17
KIN 220	Biobehavioral Bases of Physical Activity	4
ENGL 200	Expository Writing II	3
MATH 100	College Algebra	3
HHS 202	Social Well-Being	0.5
HHS 203	Financial Well-Being	0.5
ANTH 200	(Humanities) Introduction to Cultural Anthropology	3
	(Unrestricted Elective)	3

Year 2: Fall

Course #	Course Name	SCH = 16.5
CHM 210	Chemistry I	4
COMM 106	Public Speaking 1	3
FNDH 311	Health Promotion and Behavior	3
HHS 204	Physical Well-Being	0.5
FNDH 352	Personal Wellness	3
	(Unrestricted Elective)	3

Year 2: Spring

Course #	Course Name	SCH = 15
BIOL 330	Public Health Biology	3
STAT 325	Introduction to Statistics	3
HDFS 301	Helping Relationships	3
KIN 312	Methods and Analysis of Public Health	3
PLAN 315	Intro to City Planning	3

Year 3: Fall

Course #	Course Name	SCH = 14
KIN 360	Anatomy and Physiology	8
DMP313	Introduction to Epidemiology	3
KIN 418	Social Determinants and Diversity in Public Health	3

Year 3: Spring

Course #	Course Name	SCH = 13
DMP 314	Environmental and Public Health	3
ANTH 383	Plagues: The Co-Evolutionary History of Humans and Pathogens	3
MC 451	Health Communication	3
KIN 618	Seminar in Public Health Practice	1
	(Unrestricted Elective)	3

Year 3: Summer

Course #	Course Name	SCH = 3
KIN 619	Public Health Practicum	3

Year 4: Fall

Course #	Course Name	SCH = 12.5
KIN 419	Health Policy and Administration	3
AGRON 335	Environmental Quality	3
GEOG 302	Cartography & Thematic Mapping	3
	(Unrestricted Elective)	3
HHS 301	Career Well-Being	0.5

Year 4: Spring

Course #	Course Name	SCH = 12
KIN 622	Capstone Project in Public Health	2
	(Unrestricted Elective)	3
	(Unrestricted Elective)	4
	(Unrestricted Elective)	3

Total Number of Semester Credit Hours ……………………………………………. 120

VIII. 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
Mary McElroy	Professor	Ph.D.	Y	Social Determinants of Physical Activity	0.20
Katie Heinrich	Associate Professor	Ph.D.	Y	Public Health and Exercise Behavioral Sciences	0.20
Emily Mailey	Associate Professor	Ph.D.	Y	Health Behavior Theories and Interventions	0.20
Gina Besenyi	Assistant Professor	Ph.D./M.P.H.	Y	Health Promotion, Education, and Behavior	0.20
TBD* Program Director	Associate Professor	Ph.D./M.P.H.	Y	Public Health	1.0
TBD	Instructor	M.P.H.	N	Public Health	1.0
TBD	Instructor	M.P.H.	N	Public Health	1.0

Number of graduate assistants assigned to this program **………………………………………… 1.5**

IX. 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	$68,585	$69,957	$71,356

Administrators *(other than instruction time)*			
Graduate Assistants	$23,000	$23,000	$23,000
Support Staff for Administration *(e.g., secretarial)*	$3,284	$3,284	$3,284
Fringe Benefits *(total for all groups)*	$28,460	$29,032	$29,613
Other Personnel Costs			
Total Existing Personnel Costs – Reassigned or Existing	$123,329	$125,273	$127,253
Personnel – – New Positions			
Faculty		$190,000	$193,800
Administrators *(other than instruction time)*			
Graduate Assistants			
Support Staff for Administration *(e.g., secretarial)*			
Fringe Benefits *(total for all groups)*		$57,000	$58,140
Other Personnel Costs			
Total Existing Personnel Costs – New Positions		$247,000	$251,940
Start-up Costs - - One-Time Expenses			
Library/learning resources			
Equipment/Technology			
Physical Facilities: Construction or Renovation			
Other			
Total Start-up Costs			
Operating Costs – Recurring Expenses			
Supplies/Expenses			
Library/learning resources			
Equipment/Technology	$5,000	$1,000	$1,000
Travel			
Other			
Total Operating Costs	$5,000	$1,000	$1,000
GRAND TOTAL COSTS	$128,329	$373,273	$380,193

B. FUNDING SOURCES *(projected as appropriate)*	Current	First FY (New)	Second FY (New)	Third FY (New)
Tuition / State Funds		$212,840	$516,450	$890,485
Student Fees		$6,900	$16,250	$34,500
Other Sources				

GRAND TOTAL FUNDING		$219,740	$532,700	$924,985
C. Projected Surplus/Deficit (+/-) (Grand Total Funding *minus* Grand Total Costs)		+$91,411	+$159,427	+$544,792

X. 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. An annual cost-of-living pay increase of 2% was included. Each faculty listed has 40% FTE dedicated towards teaching. Some courses within this degree also fulfill requirements in our B.S. Kinesiology degree. The four existing faculty members who form the core for this degree teach these courses, thus only the portion of their teaching assignment relative to the Public Health program is shown above. Also, the proposed degree will include several core and upper level courses taught by faculty in other units at Kansas State University (e.g., Food, Nutrition, Dietetics, and Health; Veterinary Medicine).

Calculations
4 Faculty (YR 1): 4 FTE = $342,925; 0.8 total FTE for degree = $68,585
        Benefits (30%) = $20,576

Graduate Assistants: n=1 @$15,000/yr
        Benefits (30%) = $6,900

Support Staff (10%) = $3,284
         Benefits (30%) = $985

Total Salary   = $68,585 + $23,000 + $3,284 = $ 94,869
Total Benefits = $20,574 + $ 6,900 + $ 985 = $ 28,460
Total Personal =   **$123,329**

Personnel – – New Positions

A Program Director and two Instructors will be hired during the first year of the program (3 FTE). The Program Director, in addition to administrative and coordination duties, will also teach and have a research component to their appointment. The instructors will teach courses that currently are not being offered at Kansas State University, but are necessary for this new major. A 2% cost of living increase in year 3 was included.

Start-up Costs – One-Time Expenses

None

Operating Costs – Recurring Expenses

Operating costs for supplies and equipment/technology are based on estimates for each year to develop (YR 1) and maintain the program (YR 2,3) that will be covered by course fees based on student credit hours (see below).

B. Revenue: Funding Sources

Student Fee explanation: The College of Health and Human Sciences has a $20 per semester 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 semester credit hour on classes in the department. Revenue from this fee is used for instructional and advising support for the department.

Calculations
Student Credit Hours
    YR1: 20 students x 34 SCH = **680 SCH**

    YR2: 30 students x 34 SCH = 1,020 SCH
         20 students x 31.5 SCH = 630 SCH
         1,650 SCH

    YR 3: 40 students x 34 SCH = 1,360 SCH
         30 students x 31.5 SCH = 945 SCH
         20 students x 27 SCH =   540 SCH
         2,845 SCH

Tuition
    YR 1: $313 x   680 SCH = **$212,840**
    YR 2: $313 x 1,650 SCH = **$516,450**
    YR 3: $313 x 2,845 SCH = **$890,485**

Fees (note: $20/SCH college fee, $15/SCH department fee)
    YR 1: 20 students x 7 SCH x $35 = $4,900
         20 students x 5 SCH x $20 = $2,000
         $6,900

    YR 2: 30 students x 7 SCH x $35 = $ 7,350
         30 students x 5 SCH x $20 = $ 3,000
         20 students x 9.5 SCH x $20 = $ 3,800
         20 students x 3 SCH x $35 = $ 2,100
         $16,250

    YR 3: 50 students x 7 SCH x $35 = $12,250
         50 students x 5 SCH x $20 = $5,000
         30 students x 9.5 SCH x $20 = $5,700
         30 students x 3 SCH x $35 = $3,150
         20 students x 12 SCH x $35 = $8,400
         $34,500

C. Projected Surplus/Deficit

Projections are that the program will generate funds the first year. The second year will have expenses of additional faculty hires, yet will continue to generate funds as the program grows. Our rationale of determining the number of students in the degree above is 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, we anticipate that enrollment in this degree would be much higher than listed once we are able to market the degree to students interested in public health.

XI. References

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Request Updated State University Admissions Policies

Summary and Recommendations

The Qualified Admissions regulations require the Kansas Board of Regents to approve admissions policies for state universities. The state university admissions policies need to be updated to reflect the changes to the regulations and submitted for Board approval.

September 8, 2020

Background

During the 1996 Session, the Legislature enacted K.S.A. 76-717, thereby replacing the State's open admissions policy with a qualified admissions policy. Universities implemented Qualified Admissions in 1997, and with a four-year window for implementation, state universities used QA criteria to admit students beginning in 2001.

The legislation also authorized the Kansas Board of Regents to adopt rules and regulations to guide implementation of Qualified Admissions. The Board subsequently adopted Qualified Admissions regulations which required admissions policies for state universities to be approved by the Board. In 2009, K.S.A. 76-717 was amended to allow the Board to adopt rules and regulations establishing standards for admission of students to the six state universities that differ from those set forth in that statute.

In 2010, pursuant to K.S.A. 76-717, and based on recommendations of a task force established to study ways to enhance student success at the state universities, the Board adopted new Qualified Admissions regulations, K.A.R. 88-29a-1 through K.A.R. 88-29a-19 which were effective for summer 2015 applicants, requiring them to complete a precollege curriculum with a 2.0 GPA (2.5 for nonresidents) and then be admitted based on a minimum ACT composite score of 21 or rank in the top 1/3 of their high school class.

In June 2017, the Board received a report from the First Generation Taskforce recommending the Board review the Qualified Admissions criteria for entrance into a state university with a specific focus on precollege curriculum course requirements. The Board adopted the review as an AY 2018 goal and a working group, selected by the state university chief academic officers and consisting of university admissions officers, enrollment management personnel, and diversity and inclusion staff, was organized to address this Board goal. The new criteria are detailed below:

    ESU, PSU, FHSU, & WSU:
- ACT 21+ <u>or</u> Cumulative GPA 2.25+
- Cumulative GPA 2.0+ for College Credit earned in High School

    K-State:
- ACT 21+ <u>or</u> GPA 3.25+
- Cumulative GPA 2.0+ for College Credit earned in High School

    KU:
- ACT 21+ <u>and</u> Cumulative GPA 3.25+ or ACT 24+ <u>and</u> Cumulative GPA 3.0+
- Cumulative GPA 2.0+ for College Credit earned in High School

Freshman applicants graduating from an unaccredited high school shall achieve an ACT score equivalent with those outlined above per each university, and achieve a cumulative GPA of 2.0+ for College Credit earned in high school.

The above requirements are outlined in the amended regulations the Board is expected to adopt at the Sept. 10,

2020 meeting. These criteria will take effect for those who seek admission in FY 22 (those seeking admission for Summer 21, Fall 21, and Spring 22).

Lastly, it should also be noted that high school courses will no longer be a condition for admission. When the Board approved these changes in 2019, it was noted that course units (not specific courses, e.g., 4 units of math) would be recommended. In recent months, some K-12 entities have expressed concerns about the guidance associated with recommending general units rather than specific courses. As such, it is anticipated that the idea of recommending specific high school courses will be discussed during the Fall 2020 semester.   If the Board determines that specific high school courses should be recommended in lieu of general units, such courses will serve as a guidance mechanism rather than a condition of admission.

Required Action

Each state university shall update its admissions policy to reflect the new admissions criteria and updated regulations. Each policy shall include all the criteria outlined in K.A.R. 88-29c-9, attached, and shall be submitted to Academic Affairs for consideration of Board approval.

88-29c-9. Admission policies for state educational institutions. This regulation shall be applicable to each state educational institution's review of applicants beginning with the 2021 summer session. The president of each state educational institution or a designee shall establish admission policies that meet all of the following requirements:

(a) The policies shall not conflict with the provisions of this article of the board of regents' regulations.

(b) The policies shall specify the materials required for a complete application file.

(c) The policies shall address the enrollment of both degree-seeking and non-degree-seeking students as well as each student's transition from degree-seeking to non-degree-seeking status or from non-degree-seeking to degree-seeking status. Policies shall mandate that each non-degree-seeking student who applies to enroll as a degree-seeking student shall be admitted only if one of the following conditions is met:

(1) The student meets the applicable requirements specified in K.A.R. 88-29-4, K.A.R. 88-29c-5, K.A.R. 88-29a-6, K.A.R. 88-29c-7, and 88-29a-7a.

(2) The student is admitted by means of the exception window for resident freshmen class admissions described in K.A.R. 88-29a-8.

(3) The student is admitted by means of the exception window for resident transfer admissions described in K.A.R. 88-29-8a.

(4) The student is admitted by means of the exception window for nonresident transfer admissions described in K.A.R. 88-29-8b.

(5) The student is admitted by means of the exception window for nonresident freshman class admissions described in K.A.R. 88-29a-8c.

(d) The policies shall include an explanation of the exception windows and the state educational institution's method to determine which applicants would be admitted if there were more applicants than the state educational institution is allowed under K.A.R. 88-29a-8, K.A.R. 88-29-8a, K.A.R. 88-29-8b, or K.A.R. 88-29a-8c.

(e) The policies may include the establishment of subcategories of non-degree-seeking students.

(f) The policies shall include a statement indicating whether the state educational institution will consider, in the admission decision, any postsecondary credit from an institution that is not accredited and has not been granted preaccreditation status by an agency recognized by the United States department of education or by an equivalent international agency. If the state educational institution considers these credits, the admission decision shall be made in accordance with K.A.R. 88-29-4.

(g) The policies shall include a statement of whether the state educational institution enrolls students in the temporary or provisional admission category.

(1) If the state educational institution enrolls any students in the temporary admission category, the policies shall include the following:

(A) A description of requirements for exiting the temporary admission category and entering another admission category;

(B) a statement that a temporarily admitted student may be denied admission to a specific degree program;

(C) a statement that each student who fails to exit from the temporary admission category within the specified period of time shall be disenrolled; and

(D) a statement that each applicant who is admitted in the temporary admission category pursuant to K.A.R. 88-29c-10(a)(2) shall be allowed to exit from the temporary admission category and enter the regular admission category only upon verification of high school graduation.

(2) If the state educational institution enrolls any students in the provisional admission category, the policies shall include the following:

(A) A description of requirements for exiting the provisional admission category and entering another admission category;

(B) a statement that any student admitted in the provisional admission category may be denied admission to a specific degree program; and

(C) a statement that each student who fails to exit from the provisional admission category within the period of time specified by the state educational institution shall be disenrolled.

(3) The state educational institution's policy shall mandate that a student who meets the criteria for both the temporary and provisional admission categories shall not be granted regular admission until the student fulfils the requirements for exiting each of the categories in which the student is initially enrolled.

(h) The admission policy of each state educational institution shall be required to be approved in advance by the board of regents. (Authorized by and implementing K.S.A. 76-717; effective P-_____.)

Recommended High School Courses for College Preparation   **Daniel Archer**
                                                                     VP Academic Affairs

Summary

When the new Qualified Admission criteria take effect, high school courses will no longer be a condition of admission. While completing high school courses will not be an admission requirement, Board staff propose that the Kansas Scholars Curriculum is designated as the recommended coursework for high school students who wish to pursue post-secondary education at a state university.

September 8, 2020

Background

The Board approved Qualified Admission (QA) criteria changes on September 18, 2019. The new QA criteria have been codified in proposed regulations that the Board will review for approval at its September 10, 2020 meeting. Upon approval, the new QA regulations will take effect for applicants seeking admission in FY 22 (Summer 21, Fall 21, and Spring 22). The high school graduating class of 2021 will be the first class that will be reviewed for admission under the new QA standards.

Among other changes, high school courses will no longer be a condition for admission. When the Board approved these changes in 2019, it was noted that course units (not specific courses, e.g., 4 units of math) would be recommended. In recent months, some K-12 entities have expressed concerns about the guidance associated with recommending general units rather than specific courses. As such, it was requested that specific courses be recommended to help K-12 guide students toward coursework that will advance college readiness.

Board staff propose that the Kansas Scholars Curriculum is designated as the recommended coursework for high school students who wish to pursue post-secondary education at a state university. As background, the Kansas Scholars Curriculum is a set of high school courses that a student completes to be eligible for a state-funded scholarship program.

Recommending the Kansas Scholars Curriculum will align with a framework in which counselors, families, and students are familiar, steer more students toward a pathway that fosters college readiness, and enable eligible students to qualify for financial assistance.

Scholars Curriculum Courses

The Kansas Scholars Curriculum is detailed below.

English - 4 years

One unit to be taken each year. Must include substantial recurrent practice in writing extensive and structured papers, extensive reading of significant literature, and significant experience in speaking and listening.

Mathematics - 4 years

Algebra I, Algebra II, Geometry, and one unit of advanced mathematics-- suggested courses include: Analytic Geometry, Trigonometry, Advanced Algebra, Probability and Statistics, Functions or Calculus.

Science - 3 years

One year each in Biology, Chemistry, and Physics, each of which include an average of one laboratory period a week. Applied/technical courses may not substitute for a unit of natural science credit.

Social Studies - 3 years

One unit of U.S. History; minimum of one-half unit of U.S. Government and minimum of one-half unit selected from: World History, World Geography or International Relations; and one unit selected from: Psychology,

Economics, U.S. Government, U.S. History, Current Social Issues, Sociology, Anthropology, and Race and Ethnic Group Relations. Half unit courses may be combined to make this a whole unit.

Foreign Language - 2 years
Two years of one language. Latin and Sign Language are accepted.

While each content area will help build knowledge and skills for collegiate preparation, a special emphasis should be placed on the math area as some high school students only complete Algebra II and opt to forgo a senior year math course.

Students should be highly encouraged to take a high school math class above the level of Algebra II because completing this level of math increases math college readiness, which thereby reduces the need for math remediation.[1] Equally important, this enrollment step is also linked with long-term collegiate success. A national study revealed that a student who takes a math class above the level of Algebra II in high school more than doubles the odds that he/she will complete a bachelor's degree.[2]

Staff Recommendation
To reiterate, if a student does not complete the Kansas Scholars Curriculum, it will not impact his/her admission status as this proposal seeks to recommend these courses as a guidance mechanism rather than require them as a condition of admission.

Board staff recommend that COCAO endorse the Kansas Scholars Curriculum as the recommended coursework for high school students who wish to pursue post-secondary education at a state university. Upon approval, this proposal will be reviewed by the Board of Academic Affairs Standing Committee.

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[1] ACT. (2007). *Rigor at risk: Reaffirming quality in the high school core curriculum.* Iowa City, IA: ACT.
[2] Adelman, C. (1999). *Answers in the toolbox: Academic intensity, attendance patterns, and bachelor's degree attainment.* Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement.