COUNCIL OF CHIEF ACADEMIC OFFICERS
AGENDA

September 18, 2019
9:00 am – 9:50 am
or upon adjournment of SCOCAO
reconvene at noon

The Council of Chief Academic Officers will meet in Suite 530 located in the Curtis State Office Building at 1000 SW Jackson, Topeka, KS 66612, and reconvene in Kathy Rupp at noon.

I. Call To Order			
	A. Approve minutes from June 19, 2019	David Cordle, Chair	*p. 3*
II. Requests			
	A. First Readings		
	1. Associate of Applied Science in Aviation Maintenance	KSU	*p. 6*
	2. Associate of Applied Science in Professional Pilot	KSU	*p. 12*
	3. Master of Industrial Design	KSU	*p. 18*
	4. Bachelor of Science in Diagnostic Science	KUMC	*p. 29*
	B. Second Readings		
	1. Act on Request to Approve a Doctor of Philosophy in Biomedical Engineering	WSU	*p. 42*
	2. Act on Request to Approve a Doctorate in Clinical Nutrition	KUMC	*p. 60*
	C. Other Requests		
	1. Act on Request to Approve Name Change of the Department of Geography to the Department of Geography and Geospatial Sciences	KSU	*p. 74*
III. Council of Faculty Senate Presidents Update		Greg Schneider, ESU	
IV. Other Matters			
	A. *Discuss Opportunities (new degree programs, partnerships, strategic initiatives, etc.) that Universities are Considering or Planning to Pursue in the Future*	COCAO Members	
	B. *Report Due Date Reminders* 1. Spoken English Language Competency Report due September 27, 2019 2. Academic Calendars for 2022-2023, 2023-2024, and 2024-2025 due January 2020		
	C. *Update Program Inventory for 120 Semester Credit Hour Degree Programs*	Samantha Christy-Dangermond	
	D. *Determine October 16th Conference Call Time*	COCAO members	
	E. *2019 Michael Tilford Conference Hosted by the University of Kansas in Lawrence on October 3-4, 2019*		*p. 75*
	F. *Other Business*	Daniel Archer	
	G. *ESU Art Reception (noon - 1:15 pm; remarks at 1:00 pm)*		
V. Adjournment			

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 meet 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:

David Cordle, Chair	ESU	Daniel Archer	KBOR
Jill Arensdorf	FHSU	Robert Klein	KUMC
Charles Taber	KSU	JuliAnn Mazachek	Washburn
Carl Lejuez	KU		
Howard Smith	PSU		
Rick Muma	WSU		

Council of Chief Academic Officers

AY 2020 Meeting Schedule

Meeting Dates	**Location**	**Lunch Rotation**	**Institution Materials Due**	**New Program Requests due**
September 18, 2019	Topeka	WSU	August 30, 2019	July 19, 2019
October 16, 2019	*Conference Call for degree programs only*			
November 20, 2019	Pittsburg State University	PSU	November 1, 2019	September 20, 2019
December 18, 2019	Topeka	ESU	November 29, 2019	October 18, 2019
January 15, 2020	Topeka	KU	December 27, 2019	November 15, 2019
February 19, 2020	Topeka	FHSU	January 31, 2020	December 20, 2019
March 18, 2020	University of Kansas Medical Center	KUMC	February 28, 2020	January 17, 2020
April 15, 2020	Kansas State University	KSU	March 27, 2020	February 14, 2020
May 20, 2020	Topeka	Washburn	May 1, 2020	March 20, 2020
June 17, 2020	Topeka	ESU	May 29, 2020	April 17, 2020

Council of Chief Academic Officers

MINUTES

Wednesday, June 19, 2019

The June 19, 2019, meeting of the Council of Chief Academic Officers was called to order by Chair Lynette Olson at 8:47 a.m. The meeting was held in Suite 530, located in the Curtis State Office Building, 1000 S.W. Jackson, Topeka, KS.

In Attendance:

Members:	Lynette Olson, PSU	David Cordle, ESU	Jill Arensdorf, FHSU
	Carl Lejuez, KU	Charles Taber, KSU	Rick Muma, WSU
	Robert Klein, KUMC	JuliAnn Mazachek, Washburn	Jean Redeker, KBOR
Staff:	Daniel Archer	Karla Wiscombe	Sam Christy-Dangermond
	Cindy Farrier	Natalie Yoza	
Others:	Jon Marshall, Allen CC	Lori Winningham, Butler CC	Kim Krull, Butler CC
	Brad Bennett, Colby CC	Greg Schneider, ESU	Michelle Schoon, Cowley CC
	Steve Loewen, FHTC	Adam Borth, Fort Scott CC	Ryan Ruda, Garden City CC
	Alysia Johnston, Fort Scott CC	Erin Shaw, Highland CC	Marc Malone, Garden City CC
	Michael McCloud, JCCC	Brian Niehoff, KSU	Michael Calvert, Pratt CC
	Michael Fitzpatrick, Pratt CC	Ethan Erickson, KSU	Kevin Bracker, PSU
	Todd Carter, Seward CC	Linnea GlenMaye, WSU	Matt Pounds, NWK Tech
	Jeff Jarman, WSU	Jennifer Ng, KU	Precious Porras, KU
	Scott Lucas, WSU Tech	Jennifer Ball, Washburn	

Chair Lynette Olson welcomed everyone.

Approval of Minutes

Carl Lejuez moved to approve the May 15th minutes. Following the second of Jill Arensdorf, the motion carried.

First Program Readings

- KUMC – Doctorate in Clinical Nutrition
  Robert Klein introduced Dr. Deborah Sullivan to present the Doctorate in Clinical Nutrition degree program and answer questions. If there are further comments or questions, please contact Robert Klein. This is a first reading and no action is required.

Other Requests

- KSU - Request for approval to change the name of the Bachelor of Science in Technology Management degree was presented by Charles Taber. The degree will be called Bachelor of Science in Applied Business and Technology.

  Rick Muma moved to approve the above degree name change at KSU. Following the second of Carl Lejuez, the motion carried.

Council of Faculty Senate Presidents (CoFSP) Update

Greg Schneider, ESU, stated this is the first meeting for the new members of CoFSP. The council will discuss several topics and determine the main ones to be addressed in the upcoming year.

OTHER MATTERS

- The Revised New Program Proposal Form was presented by Jean Redeker. The clinical sites section has been updated to include the Inter-Institutional Non-Binding Memorandum of Understanding for Clinical Affiliation Site Cooperation.

  By consensus, COCAO approved the revised New Program Proposal Form.

- Jean Redeker informed COCAO of a Provost Leadership Development Academy that is available from AASCU-Penson Center for Professional Development. If you are interested in participating, contact Kay Schallenkamp, AASCU, or Daniel Archer, KBOR.

- Jean Redeker informed COCAO of the Legislative Task Force on Dyslexia report. The Task Force made several recommendations and it is our understanding Kansas State Board of Education is interested in implementing the recommendations. KBOR has been asked to provide a fiscal note, for the third recommendation in the report:
  - The Legislature should provide funding to train college of education professors who teach reading to become cognizant in the science of reading. Training could include conference participation, educational experiences, webinars, and relevant education materials.

  Please submit your recommendations for the fiscal note by July 15th to Daniel Archer.

- Informational items
  - FHSU is working on a Master's in Athletic Training degree program.

- Daniel Archer informed COCAO of the September 27th deadline for the Spoken English Language Competency Report.

- Tilford Conference
  The 2018 Post Event report was presented by Kate McGonigal, FHSU. Deatrea Rose, PSU, and Teresa Clounch, FHSU, were introduced. Highlights of the report include:
  - Over 200 attendees from 18 institutions
  - Contributions from FHSU to obtain John Quinones as keynote speaker
    - Creating Diversity Speakers' week on local media station
  - Expenses were $68.60 per capita from the Tilford budget and $153.70 per capita combined – Tilford budge and FHSU contributions

  The 2018 Tilford Conference Post-Conference Survey Results and Notes from Institutional Focus Groups document was distributed to COCAO. *A copy of this report is filed with the official minutes.*

  The 2019 Tilford Conference will be held at KU and Jennifer Ng is the KU Coordinator.

  COCAO thanked Kate McGonigal and the Tilford Conference planning committee for the leadership and dedication in making the conference a success.

- Vision and purpose of Tilford Conference discussion was led by Carl Lejuez. Members of the Council of Diversity Officers were introduced, Deatrea Rose, PSU; Teresa Clounch, FHSU; Bryan Samuel, KSU; and Jennifer Ng, KU. Precious Porras, KU, was also introduced.

Discussion included:
- Attendance by faculty, staff, and graduate students
- Value of in-state conference when determining faculty development budget
- 2019 Tilford Conference Call for Papers handout "From Knowledge to Practice: Professional Development for a More Equitable Campus"
- Draft rubric for reviewing the proposals
- Draft 2019 Tilford Conference itinerary with Jerry Kang as the keynote speaker
- Communication and marketing plan for Tilford Conference

The Chair recessed the meeting at 9:50 am and reconvened at 12:10 pm.

Tilford discussion continued:
- Council of Chief Diversity Officers discussed the objectives of the Tilford Conference
- Potential for attendance of undergraduate students based upon criteria
- Benefits of recruiting attendees from two-year colleges and private institutions within the state
    - Help non-native Kansans understand the diversity in the state and region
- Overall financial support by universities and potential fund raising
- Importance of the central core academic administrator layer attending the conference
- Requested a session tailored to administrators
    - Recent events, faculty and staff engagement, building a support system

COCAO thanked the Council of Chief Diversity Officers for the discussion. Carl Lejuez will compile notes from the discussion and send to COCAO.

- COCAO thanked Jean Redeker for her time and dedication to the committee and wished Jean well in her new endeavor at the University of Kansas.

- On behalf of COCAO, David Cordle thanked Lynette Olson for her dedication and service to Kansas Higher Education and wished her well in retirement.

The COCAO chair for AY2019-2020 will be David Cordle. Jill Arensdorf moved to adjourn the meeting. Following the second of Rick Muma, the motion carried. The meeting adjourned at 12:35 pm.

Kansas State University Technology and Aviation (Polytechnic)

Associate of Applied Science in Aviation Maintenance

Program Approval

I. General Information

A. Institution Kansas State University

B. Program Identification

Degree Level:	Associate of Applied Science
Program Title:	Aviation Maintenance
Degree to be Offered:	Associate of Applied Science in Aviation Maintenance
Responsible Department or Unit:	College of Technology and Aviation/School of Integrated Studies
CIP Code:	47.0607
Modality:	Face-to-Face
Proposed Implementation Date:	Spring 2020

Total Number of Semester Credit Hours for the Degree: 70

II. Justification

The aviation industry is experiencing a human resource shortage of qualified aviation maintenance personnel; this need will continue into the foreseeable future. This shortage is affecting related organizations in their ability to provide services to growing customer (aircraft operators) needs. Upon completing the Federal Aviation Administration certification requirements, this proposal will allow our students to earn an associate's degree in two years and be eligible for work force employment earlier.

Kansas has a long history of fulfilling the needs of the aviation industry. As the one of two Aviation Maintenance Technician Schools (FAA Part 147) in Kansas that offers this training, Kansas State University Polytechnic Campus (KSUPC) has done its part in producing quality aviation maintenance graduates to serve this stable, yet growing industry. KSUPC offers a BS degree in Aviation Maintenance, and has found that students leave the program before completion because they have the technical knowledge to find good jobs in the industry without a BS degree. Therefore, in order to provide these students with the opportunity to earn a credential prior to leaving, the development of an associate degree seems prudent. As the aviation industry is undergoing shortages that are forecasted to worsen before improving, KSUPC has an opportunity to move quickly and aid in providing skilled aviation personnel that will be ready for the workforce with a shorter degree plan.

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

A. Survey of Student Interest

Number of surveys administered: …… _____
Number of completed surveys returned: ……. _____
Percentage of students interested in program: … _____

Include a brief statement that provides additional information to explain the survey.

B. Market Analysis

Boeing Technician Outlook: 2018 – 2037 www.boeing.com
"As new generation airplanes become more prominent in the global fleet, advances in airplane technology will drive an increased need for technicians skilled in avionics, composites, and digital troubleshooting… The need for maintenance personnel is largest in the Asia Pacific region, which will require 257,000 new technicians. Airlines in North America will require 189,000, Europe 132,000, the Middle East 66,000, Latin America 55,000, Africa 28,000, and Russia / Central Asia 27,000."

In addition, the Aviation Technician Education Council supports the Coalition in Support of Workforce Grant Program to advance aviation maintenance education; ATEC (March 2019 annual conference www.atec-amt.org) shared that the need for maintenance technicians is high, and looming workforce retirements coupled with nationwide low school enrollments are holding up industry progress and advancements. The ATEC Pipeline Report for 2018 (https://www.atec-amt.org/pipeline-report.html) projects that the mechanic population will decrease by 5% in the next 15 years, and that technical schools have the capacity to help close that gap. Textron Aviation Workforce Development has indicated hiring challenges for aviation maintenance professionals now.

IV. 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	12	0	432	0
Year 2	15	0	948	0
Year 3	22	0	1302	0

V. Employment

The demand by industry partners for our aviation maintenance graduates has never been higher than what it is now; there is a big need for replacement employees throughout aviation maintenance and aircraft servicing areas. The industry is facing a looming retirement of large numbers of people. Also, our current student enrollment is far from our capacity limit, as is the same for many more aviation maintenance programs across our nation. Our placement rates for students earning the BS degree is over 90%, and even students who leave the program early are able to obtain jobs. See the Market Analysis above for the needs facing the industry.

VI. Admission and Curriculum

A. Admission Criteria
University Admission Requirements:

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

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

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

B. Curriculum

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

Course #	Course Name	SCH = 18
AVM 101	Introduction to Aircraft Materials and Tooling Standards	3
AVM 102	Aviation Regulations, Compliance and Operations	2
AVM 111	Basic Aircraft Electricity	4
AVM 214	Introduction to Aircraft Propulsion Theory, Design and Systems	3
MET 111	Technical Graphics	3
	Humanities/Social Science elective	3

Year 1: Spring

Course #	Course Name	SCH = 18
AVM 201	Aircraft Metallic Primary Structures	3
AVM 203	Aircraft Environmental and Fire Protection Systems	3
AVM 205	Aircraft Landing Gear and Fluid Power Systems	3
AVM 207	Aircraft Electrical Systems	3
AVM 305	Introduction to Aircraft Avionics and Instrument Systems	3
ENGL 100	Expository Writing I	3

Year 2: Fall

Course #	Course Name	SCH = 18
AVM 216	Aircraft Propulsion Drive Systems	3
AVM 303	Introduction to Aircraft Composite Structures	3
AVM 306	Rotary and Fixed Wing Aircraft Design and Assembly	3
AVM 370	Advanced Aircraft Avionics and Instrument Systems	3
COMM 106	Public Speaking I	3
MATH 100	College Algebra	3

Year 2: Spring

Course #	Course Name	SCH = 16
AVM 301	Advanced Reciprocating Powerplant Technology	3
AVM 304	Aircraft Fuel Management and Metering Systems	3
AVM 322	Powerplant Operations and Troubleshooting	3
AVM 402	Advanced Gas Turbine Powerplant Technology	3
PHYS 113	General Physics I	4

Total Number of Semester Credit Hours ……. 70

VII. Core Faculty

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

Faculty Name	Rank	Highest Degree	Tenure Track Y/N	Academic Area of Specialization	FTE to Proposed Program
*Andrew Smith	Professor	MS	Y	Aviation Maintenance, Flight, Airport Management	1.0
Steven Locklear	Instructor	MS	N	Aviation Maintenance	1.0
Monty Root	Lab Technician	BS	N	Aviation Maintenance	1.0

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

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

A. EXPENDITURES	First FY	Second FY	Third FY
Personnel - Reassigned or Existing Positions			
Faculty (3)	$200,303	$200,303	$200,303
Administrators *(other than instruction time)*			
Graduate Assistants			
Support Staff for Administration (*e.g., secretarial*)			
Fringe Benefits *(total for all groups)*	$ 61,636	$ 61,636	$ 61,636
Other Personnel Costs			
Total Existing Personnel Costs – Reassigned or Existing	$261,939	$261,939	$261,939
Personnel - New Positions			
Faculty (1/2-time, then full-time)		$ 33,384	$ 66,768
Administrators *(other than instruction time)*			
Graduate Assistants			
Support Staff for Administration (*e.g., secretarial*)			
Fringe Benefits *(total for all groups)*		$ 10,273	$20,546
Other Personnel Costs			
Total Existing Personnel Costs – New Positions	0	$ 43,657	$ 87,314
Start-up Costs - One-Time Expenses			
Library/learning resources			
Equipment/Technology			
Physical Facilities: Construction or Renovation			
Other			
Total Start-up Costs	0	0	0

Operating Costs - Recurring Expenses			
Supplies/Expenses			
Library/learning resources			
Equipment/Technology			
Travel			
Other			
Total Operating Costs	0	0	0
GRAND TOTAL COSTS	$261,939	$305,596	$349,253

B. FUNDING SOURCES *(projected as appropriate)*	Current	First FY (New)	Second FY (New)	Third FY (New)
Tuition / State Funds		$126,144	$276,816	$380,184
Student Fees				
Other Sources				
GRAND TOTAL FUNDING	0	$126,144	$276,816	$380,184
C. Projected Surplus/Deficit (+/-) (Grand Total Funding *minus* Grand Total Costs)		($135,795)	($28,780)	$30,931

IX. Expenditures and Funding Sources Explanations

A. Expenditures

Personnel – Reassigned or Existing Positions

Currently, three faculty/staff positions support the Aviation Maintenance Management bachelor's degree option. There are seats available in existing classes to support the expected number of new enrollments in the associate's degree for the first year.

Personnel – New Positions

To meet the need for increased enrollment in the second year, additional sections for two courses will need to be added each semester. This will be possible with a half-time position. The following year, an additional two courses per semester will be added, taking the faculty position from half-time to full-time.

Start-up Costs - One-Time Expenses

No start-up costs are necessary, as equipment/technology is already available and being used for the bachelor's degree.

Operating Costs – Recurring Expenses
Additional recurring expenses are minimal, as equipment/technology is already available and being used for the bachelor's degree.

B. Revenue: Funding Sources

Tuition will be the primary funding source for the program. Using current K-State Polytechnic Kansas resident tuition rates ($292 per SCH), and the SCH table in Section IV Projected Enrollments, we calculated the tuition dollars that would be generated from the program each year.

Student fees total $465 per student for all Aviation Maintenance courses in the associate's degree. These fees are used for consumable lab expenses and are not included in this analysis.

C. Projected Surplus/Deficit

Program should begin experiencing a surplus in the third year, possibly sooner. Estimates for revenues assume the program is comprised of 100% in-state students. While there is no easy way to estimate what percent of the students in the program will be out-of-state students, we believe that a portion will be from out-of-state. Non-resident tuition is $788 per credit hour, over 2.5 times the tuition for in-state students. For each credit hour taken by an out-of-state student, there will be an increase of $496 to revenues generated. This will likely decrease the projected deficits in the first two years.

X. References

- Aviation Technician Education Council (ATEC) March 2019 annual conference www.atec-amt.org
- ATEC Pipeline Report for 2018 (https://www.atec-amt.org/pipeline-report.html)
- Boeing Technician Outlook: 2018 – 2037 www.boeing.com

Kansas State University Technology and Aviation (Polytechnic)

Associate of Applied Science in Professional Pilot

Program Approval

I. General Information

A. Institution Kansas State University

B. Program Identification

Degree Level:	Associate of Applied Science
Program Title:	Professional Pilot
Degree to be Offered:	Associate of Applied Science in Professional Pilot
Responsible Department or Unit:	College of Technology and Aviation/School of Integrated Studies
CIP Code:	49.0102
Modality:	Face-to-Face
Proposed Implementation Date:	Spring 2020

Total Number of Semester Credit Hours for the Degree: 60

II. Justification

The aviation industry is experiencing a human resource shortage of skilled pilots and this will continue into the foreseeable future. The lack of human resources is causing many employers to no longer require a bachelor's degree for their pilot employees. Upon completion of the Federal Aviation Administration's certification requirements, this proposal will allow students to earn an associate's degree in 2 years and qualify for reduced aviation experience requirements for their Airline Transport Pilot Rating.

Kansas has a long history in fulfilling the needs of the aviation industry. As the only university in Kansas that offers pilot training (FAA Part 61 and 141), Kansas State University Polytechnic Campus has done its part in producing quality aviators to operate in the global airspace. As the aviation industry is undergoing pilot shortages that are expected to worsen, Kansas State University has an opportunity to aid in providing skilled aviators that are ready for the workforce. Kansas State University Polytechnic Campus has traditionally offered associates degrees and revitalizing this degree will lead to increased enrollment in a field that needs skilled workers.

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

A. Survey of Student Interest

Number of surveys administered: …… _____
Number of completed surveys returned: ……. _____
Percentage of students interested in program: … _____

Include a brief statement that provides additional information to explain the survey.

B. Market Analysis

In their Pilot Supply and Air Service Update from May 2019, the Regional Airline Association reports that the expected pilot shortage is here and is impacting the air service to communities that are serviced by regional airlines. Regional airlines provide the only source of air service for 217 regional airports around the country. In a survey of the 22 airlines represented by the Regional Airline Association, not a single one requires a traditional 4 year degree. The associate's degree proposed will provide a structured training environment that will ensure the immediate success of its graduates while serving as a recognized "building block" for individuals seeking to further their education in the future.

IV. 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		600	
Year 2	25		1,350	
Year 3	35		1,800	

V. Employment

Pilot Outlook: 2018-2037

The 2018 Boeing Pilot & Technician Outlook, a respected industry forecast of personnel demand, projects that 790,000 new civil aviation pilots, 754,000 new maintenance technicians, and 890,000 new cabin crew will be needed to fly and maintain the world fleet over the next 20 years. The forecast is inclusive of the commercial aviation, business aviation, and civil helicopter industries.

The demand will stem from a mix of fleet growth, retirements, and attrition. Meeting this extraordinary demand will require proactive planning and collaboration within the global aviation industry. As several hundred thousand pilots and technicians reach retirement age over the next decade, educational outreach and career pathway programs will be essential to inspiring and recruiting the next generation of personnel.
The aviation industry will need to adopt innovative training solutions to enable optimum learning and knowledge retention. Immersive technologies, adaptive learning, schedule flexibility, and new teaching methods will be needed to effectively meet a wide range of learning styles. The growing diversity and mobility of aviation personnel will also require instructors to have cross-cultural, cross-generational, and multilingual skills to engage with tomorrow's workforce.

VI. Admission and Curriculum

A. Admission Criteria

University Admission Requirements:

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

- A 21 or higher composite score on the ACT assessment **OR**
- A 1060 or higher on the SAT ERW+M if taken after March 2016 **OR**

- A 980 or higher on the SAT CR + M if taken before March 2016 **OR**
- Rank in the top third of your graduating class

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

B. Curriculum

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

Course #	Course Name	SCH=14
AVT 100	Introduction to Aviation	3
Math 100	College Algebra	3
PPIL 111	Private Pilot	4
PPIL 113	Private Pilot Flight Lab	1
	Humanities/Social Science Elective	3

Year 1: Spring

Course #	Course Name	SCH=16
AVT 242	Aviation Meteorology	3
ENGL 100	Expository Writing I	3
Math 150	Plane Trigonometry	3
PPIL112	Professional Instrument Pilot	3
PPIL114	Professional Instrument Pilot Flight Lab	1
PSYCH 110	General Psychology	3

Year 2: Fall

Course #	Course Name	SCH=15
AVT 386	Aerodynamics	3
COMM 106	Public Speaking I	3
PHYS 113	General Physics I	4
PPIL 211	Professional Commercial Pilot	3
PPIL 212	Professional Commercial Pilot Flight Lab I	2

Year 2: Spring

Course #	Course Name	SCH=15
AVT 340	Human Factors in Aviation	3
PPIL 210	Aviation Safety	3
PPIL 213	Professional Commercial Pilot Flight Lab II	2
PPIL 262	Multi-Engine Ground School	1
PPIL 263	Multi-Engine Flight Lab	1
	Aviation Elective	2
	Economics Elective	3

Total Number of Semester Credit Hours ……. 60

VII. Core Faculty

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

Faculty Name	Rank	Highest Degree	Tenure Track Y/N	Academic Area of Specialization	FTE to Proposed Program
William Gross	Professor	MS	Y	Pilot training, advanced aircraft operations	0.3
Eric Shappee	Professor	MS	Y	Pilot training, Safety	0.3
Troy Brockway	Professor	MS	Y	Pilot training, Safety	0.1
John Dahl	Teaching Assistant Professor	MS	N	Pilot training, Commercial Operations	0.3
Hugh Irvin	Instructor	BS	N	Pilot training	0.3

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

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

A. EXPENDITURES	First FY	Second FY	Third FY
Personnel – Reassigned or Existing Positions			
Faculty	$93,319	$93,319	$93,319
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)*	$26,623	$26,623	$26,623
Other Personnel Costs	0	0	0
Total Existing Personnel Costs – Reassigned or Existing	$119,942	$119,942	$119,942
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 Existing Personnel Costs – New Positions	0	0	0
Start-up Costs - One-Time Expenses			
Library/learning resources			
Equipment/Technology			
Physical Facilities: Construction or Renovation			
Other			
Total Start-up Costs	0	0	0

Operating Costs – Recurring Expenses			
Supplies/Expenses	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			
GRAND TOTAL COSTS	$119,942	$119,942	$119,942

B. FUNDING SOURCES *(projected as appropriate)*	Current	First FY (New)	Second FY (New)	Third FY (New)
Tuition / State Funds		$288,712	$649,602	$866,136
Student Fees	0	0	0	0
Other Sources				
GRAND TOTAL FUNDING		$288,712	$649,602	$866,136
C. Projected Surplus/Deficit (+/-) (Grand Total Funding *minus* Grand Total Costs)		$168,770	$529,660	$746,194

IX. Expenditures and Funding Sources Explanations

A. Expenditures

Personnel – Reassigned or Existing Positions

No new courses will be offered for the two-year program and there are existing seats available in the professional pilot bachelor degree to support program growth during the first year. Additional sections of the required courses can be added during years 2 and 3 within the capacity of existing staff.

Personnel – New Positions

There is no anticipated need for additional personnel within the first three years.

Start-up Costs – One-Time Expenses

The bachelor's program in professional pilot currently has 27 flight training airplanes and 3 flight training devices (simulators) and has the capacity to handle the projected incoming students. There is no need for additional start-up costs.

Operating Costs – Recurring Expenses

Additional recurring expenses are minimal, as equipment/technology is already available and being used for the bachelor's degree.

B. Revenue: Funding Sources

Tuition will be the primary funding source for the program. Using current distribution of resident and non-resident (62% resident, 38% nonresident) enrollment in the bachelor degree, K-State Polytechnic Kansas resident tuition rates (resident = $292.65 per SCH, non-resident = $788.80 per SCH), and the SCH table in Section IV Projected Enrollments, we calculated the tuition dollars that would be generated from the program each year.

Flight training fees are billed separate from tuition and support all training operations through restricted fee accounts. These expenses are not included in this analysis as faculty and resources for classroom instruction are supported through tuition revenue.

C. Projected Surplus/Deficit

With no new faculty or resources needed, the program should experience a surplus from year one.

X. References

Boeing Commercial Airplanes. (2017). Pilot & Technician Outlook 2018-2037. Retrieved from http://www.boeing.com/commercial/market/pilot-technician-outlook/#/pilot-technician-outlook

Regional Airline Association Pilot Supply and Air Service Update. (May 2019). Pilot Supply & Air Service Update. Retrieved from https://www.raa.org/wp-content/uploads/2019/05/20190510-Pilot-Workforce-and-Training-Deck_May-Update_v3.pdf

Kansas State University

Master of Industrial Design

Program Approval

I. General Information

A. Institution Kansas State University

B. Program Identification

Degree Level:	Master
Program Title:	Industrial Design
Degree to be Offered:	Master of Industrial Design (M.INDD)
Responsible Department or Unit:	Interior Architecture and Product Design
CIP Code:	50.0404
Modality:	Face to Face
Proposed Implementation Date:	Fall of 2020

Total Number of Semester Credit Hours for the Degree: 170

II. Justification

Kansas State University proposes this new Master of Industrial Design program (M.INDD) be offered in collaboration with the established curriculum of the Master of Interior Architecture and Product Design (M.IAPD) program. While design is central to both 5-year programs, the M.IAPD is focused heavily on interior architecture, while the proposed M.INDD program focuses in on manufacturing and product development.

The Master of Industrial Design (M.INDD) program will:

- leverage 19 courses from the current M.IAPD curriculum for a total of 56 semester credit hours;
- utilize renovated, expanded, and existing architecture and design facilities; and
- incorporate current faculty strengths.

The proposed 5-year professional master's degree will be the only one of its kind in the country. Through the department's research of over 80 schools with industrial design degree programs, it was discovered that other schools with five-year degrees are 150+ hours to receive the bachelor's degree. Within this M.INDD curriculum, students will also be required (as in all the College of Architecture, Planning, and Design degree programs) to participate in a study abroad experience and/or complete a professional internship. The department also plans to develop opportunities for baccalaureate graduates from other Kansas Regents' institutions to transfer into this graduate program in order to attain this Master of Industrial Design degree while remaining in Kansas.

All programs in the College of Architecture, Planning and Design are accredited, and a few are ranked in the top 10 in the country. The College wants to assure that the new Master of Industrial Design will also be ranked highly. We looked at two schools - Georgia Tech and Iowa State University - as a comparison for the appropriate length and requirements for the program. Georgia Tech offers a Master's degree in Industrial Design, which is two years of course work over and above the 120 hours for completing a Bachelor's in Industrial Design. Those two years represent 50+ hours of course work in the Master's, which results in around 170 hours of credit at completion. The Master of Industrial Design at Iowa State is also a two-year program, adding 60+ hours of work on top of a 120 hour Bachelor's degree. It should also be noted that K-State's Master of Architecture program and its Master of Interior Architecture and Product Design are both at 170 hours for the total degree.

This M.INDD program bridges engineering, art, and business; these disciplines prepare the designer to:

- understand the manufacturing process (Industrial Engineering);
- best visually communicate ideas (Art); and
- bring the product to the market place (Entrepreneurship).

Capitalizing on existing expertise within the college, as well as with connections with key alumni and industry, this degree program will focus on products within interior environments (varied examples include designs of furniture, plumbing fixtures, and helicopter interiors – all current K-State industrial partners). These types of projects afford students great exposure to various industries, and there is potential to build an even broader base of industrial partnerships.

Additionally, the Kansas Department of Commerce has made Advanced Manufacturing a major initiative to entice manufacturers to Kansas (KDOC, 2017). This degree path will play a significant role in providing an industrial design talent pool for these manufacturers.

The National Association of Schools of Art and Design (NASAD), the accrediting agency for this program, establishes national standards for undergraduate and graduate degrees and other credentials for art and design and art/design-related disciplines, and it provides assistance to institutions and individuals engaged in artistic, scholarly, educational, and other art/design-related endeavors. NASAD has been contacted and is aware of our seeking to add this degree. We are currently completing an application for New Program Approval in tandem with this proposal as is typical in their process.

III. Program Demand:

A. Survey of Student Interest

Number of surveys administered: ……	54
Number of completed surveys returned: …….	50
Percentage of students interested in program: …	24%

In Spring 2019, a survey was conducted of first-year students already interested in K-State's established Master of Interior Architecture and Product Design (M.IAPD) degree. The survey attempted to identify the number of students who might be interested in migrating to a new Master of Industrial Design (M.INDD) program when it is established. Of the 50 responses, 26 desired to pursue the M.IAPD degree track, 12 indicated a desire to pursue the M.INDD track, and 12 were undecided.

These numbers indicate a significant desire for the M.INDD degree. This is particularly revealing since K-State has not advertised the proposed program during the recruitment of the surveyed cohort.

B. Market Analysis

Market Competition

From research of over 80 schools with industrial design programs, we created a map highlighting the locations of US institutions with industrial design programs (Figure 1). When viewed in consultation with Bureau of Labor Statistics job market demands map (Figure 2, located in Section V. Employment), one can see the need for greater education opportunities for industrial designers in the Midwest. The University of Kansas (BFA in Industrial Design) is the closest institution with an industrial program to K-State, the southern 1-35 corridor and Kansas City. Iowa, Colorado, and Texas each have only one institution providing education opportunities to this field while Illinois has three. Of these programs, only Iowa State offers a master's degree. With the recent expansion of the Midwest Student Exchange Program (MSEP), K-State is uniquely positioned to draw students from not only Kansas and Missouri, but from MSEP states as well.

Figure 1. Mapping of all Industrial Design schools in the US.
Source: Department of Interior Architecture & Product Design, K-State

Potential Student Population

Currently, without advertising or having the degree in place, there is a significant number of students (12 to 16) ready to take the M.INDD degree. These numbers do not adversely impact the M.IAPD program; as proof, in 2018-19 the Interior Architecture and Product Design Department enrolled 18 more students into the M.IAPD's first-year curriculum than the entire college normally admits. This degree path is uniquely positioned to bring in a new population of design students.

The College of Architecture, Planning & Design and its alumni partners have been diligently working to develop relationships with Kansas high schools that have developed specialized curricula to introduce and mentor students toward careers in architecture, design, and engineering (e.g., Blue Valley Center for Advanced Professional Studies, Shawnee Mission Project Lead the Way, Olathe Environmental Design, KCK Sumner Academy, Topeka Center of Advanced Learning and Careers). These relationships will expand and also be valuable to the M.INDD degree program.

IV. 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	16	0	544	0
Year 2	16	0	1200	0
Year 3	16	0	1712	0

Please note, the implementation year of the degree program will start with second-year students due to the nature of the college's first-year program being a shared curriculum for all degree paths in the college.

V. Employment

From data provided by the Bureau of Labor Statistics, the regional locations needing Industrial Designers follow the major metropolitan areas of Denver, Dallas, Austin, Houston, Kansas City, Wichita, Omaha, St. Louis, Sioux Falls and Chicago. Only seven schools with industrial design degrees are in this region, and only one provides a master's degree. This means the majority of employees in this region are being educated outside of this state and region.

According to Nichols (2013) the industrial design field has a potential growth of 10.5% between 2010-2020 in the US. According to Job Outlook (2018, Figure 2), there is 5% growth in the US job market. Kansas specifically offers 60-150 industrial design jobs. A recent search of Indeed.com for job openings in this field totaled over 50, mostly in Kansas City metropolitan area, Wichita, Salina, and South Hutchinson. Two of the target states from which K-State recruits are Texas and California. California is one of the top states employing industrial designers, and California and Texas are two of the top states in payroll for industrial designers (Nichols 2013). The KSU degree also adds a robust furniture design curriculum allowing graduates alternative employment paths.

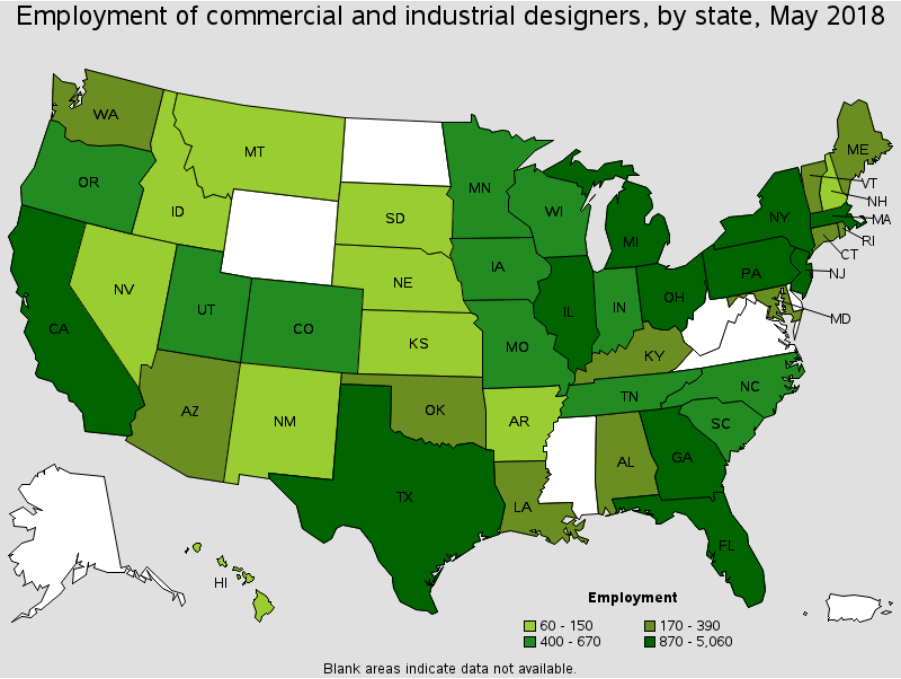


Figure 2. Employment of Commercial and Industrial Designers from the Occupational Employment Statistics (2018).

VI. Admission and Curriculum
A. Admission Criteria

Admission to the College

The College of Architecture, Planning and Design is a selective admission college that is based upon high school GPA and ACT/SAT scores; for transfer students, admission is based on transfer cumulative GPA.

An ACT score of 25 and a 3.5 GPA are requirements for guaranteed admission. Following the guaranteed admits, the department will then consider applications with a minimum score of 21 ACT and 3.0 GPA. During the first year of study and prior to being admitted to the M.INDD program, students are enrolled in Environmental Design Studies courses (refer to *B. Curriculum*: note the ENVD courses in the first and second semesters prior to being eligible for the M.INDD program). Here, approximately 180 students are exposed to foundational skills required for success in each of the college's master's programs. In the spring of their first year, after learning more about each program and profession, students apply to their desired master's program, continuing on this path until their attainment of a master's degree.

Approximately 3-6 transfer students are admitted each year; placement in the program depends on successful, prior educational coursework. Transfer students need a minimum of a 3.0 GPA for admission with a portfolio to decide on year level placement.

Noteworthy, the College of Architecture, Planning and Design maintains numerous articulation agreements with other educational institutions. Most transfers from these agreements come from UMKC. The UMKC agreement allows students from the KC Metro to begin coursework at UMKC in a duplicate curriculum. Students then transfer directly to K-State after their first or second year depending on degree path criteria, thus allowing students the opportunity to remain closer to home to alleviate costs associated with degree completion. The M.INDD would require students from UMKC to transfer after the first year. We are now also articulating agreements with Johnson County Community College for similar transfer into the program.

Historically, this department has not had part-time students and does not foresee any in the future.

Admission to the Degree Program

Similar to existing majors in architecture, interior architecture and product design, landscape architecture, and regional and community planning, students will not declare a major in industrial design until early in the second semester of study. Progression to the degree-granting programs in the second year is based upon successful completion of the first year ENVD courses and cumulative K-State GPA. Because all graduate design programs are five-year master's degree programs and students in these programs will apply to the Graduate School midway through their third year, a strong cumulative GPA in the first year is important.

B. Curriculum: *Pre-Program Curriculum*

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

Course #	***Course Name***	***SCH***
ENVD 201	*Environmental Design Studio I*	*4*
ENVD 250	*History of Designed Environment I*	*3*
ENVD 203	*Survey of Design Professions*	*1*
ENVD 204	*Studio Seminar*	*1*
MATH 100	*College Algebra*	*3*
COMM 105	*Public Speaking 1A*	*2*
	General Elective	*3*
	TOTAL	***17***

Year 1: Spring

Course #	*Course Name*	*SCH*
ENVD 202	*Environmental Design Studio II*	*4*
ENVD 251	*History of Designed Environment II*	*3*
PHYS 115	*Descriptive Physics*	*5*
ENGL 100	*Expository Writing I*	*3*
	TOTAL	***15***

C. Curriculum: M.INDD Curriculum ***(****New Courses in* ***Bold)***

Year 2: Fall **SCH = Semester Credit Hours**

Course #	Course Name	SCH
IAPD 307	IAPD & INDD Design Studio I	5
IAPD 430	Visual Communication I	2
IAPD 456	Intro to Product/Industrial Design	2
IAPD 248	Fundamentals of Arch. Technology	3
ARCH 350	History of Designed Environment III	3
ENGL 200	Expository Writing II	3
	TOTAL	**18**

Year 2: Spring

Course #	Course Name	SCH
INDD 320	**INDD DESIGN STUDIO II**	5
IAPD 407	Design Workshop I	3
IAPD 412	Design Workshop Studio I	1
IAPD 431	Visual Communication II	2
IMSE 250	Intro. Manufacturing Processes & Systems	2
INDD 325	**Product Semantics**	3
	TOTAL	**16**

Year 3: Fall

Course #	Course Name	SCH
INDD 435	**INDD Studio III**	5
IAPD 803	Design Workshop II	3
IAPD 802	Design Workshop Studio II	1
INDD 310	**INDD Digital Applications**	2
INDD 350	**Human Factors**	3
IAPD 416	History of Furniture	3
	TOTAL	**17**

Year 3: Spring

Course #	Course Name	SCH
INDD 440	**INDD Design Studio IV**	5
INDD 500	**Materials & Manufacturing Processes**	3
LAR 311	Unlocking Creativity	3
IAPD 625	Lighting	3
ART 303	Graphic Design for Non-Majors	3
	TOTAL	**17**

Year 3: Summer

Course #	Course Name	SCH
IAPD 664/5	Summer Internship and Report	[7]
	OR	
	Study Abroad	[7]
	TOTAL	**7**

Year 4: Fall

Course #	Course Name	SCH
IAPD 644/5	Internship and Report	[14]
	OR	
	Study Abroad	[14]
	OR	
INDD 606	**INDD Design Studio V [5]** and Electives [9]	[14]
	TOTAL	**14**

Year 4: Spring

Course #	Course Name	SCH
INDD 811	**Design Research**	3
INDD 801	**INDD Design Studio VI**	5
INDD 813	**Design Workshop III**	3
INDD 814	**Design Workshop Studio III**	1
INDD 800	**Professional Practice**	3
ENTRP 340	Intro to Entrepreneurship	3
	TOTAL	**18**

Year 5: Fall

Course #	Course Name	SCH
INDD 810	**INDD Capstone Studio**	5
INDD 815	**Advanced Studio Programming**	2
ENTRP 350	Technology & Innovation Management	3
	General Electives	6
	TOTAL	**16**

Year 5: Spring

Course #	Course Name	SCH
INDD 822	**Advanced Industrial Design Studio**	[6]
	OR	
IAPD 824	Advanced Furniture Studio	[6]
IAPD 891	Contemporary Design Seminar	3
	General Electives	6
	TOTAL	**15**

Total Number of Semester Credit Hours ……. 170

VII. Core Faculty

Note: * Next to Faculty Name Denotes Director of the Program
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
David Brown	Assoc. Prof.	Masters	N	Furniture Design	.25
Steve Davidson	Assist. Prof.	Masters	N	Furniture Design	.25
Mekin Elçioğlu	Assist. Prof.	Ph.D.	Y	Industrial Design	1.0
Chris Fein	Assist. Prof.	Masters	N	Architecture	.25
Robyn Gibson	Instructor	Masters	N	Interior Architecture and Product Design	1.0
Aziza Cyamani	Visiting Prof.	Masters	Y	Industrial Design	.50
Hernan Gregorio	Instructor	Bachelors	N	Industrial Design	.75
Neal Hubbell	Assoc. Prof.	Masters	N	Interior Architecture and Contract Furniture	.50
Nathan Howe*	Assoc. Prof.	Masters	N	Architecture	.35
Katrina Lewis	Assoc. Prof.	Masters	N	Environmental Design	.50
Michael McGlynn	Assoc. Prof.	Masters	N	Architecture	.25
Kendra Kirchmer	Assist. Prof.	Masters	Y	Furniture Design	.50

Over the program's first three years we would be hiring three new faculty to support this degree path.
Number of graduate assistants assigned to this program **…… 3**

VIII. Expenditure and Funding Sources

A. EXPENDITURES	First FY	Second FY	Third FY
Personnel – Reassigned or Existing Positions			
Faculty	86,697	173,394	260,092
Administrators *(other than instruction time)*	10,500	21,000	31,500
Graduate Assistants	5,625	11,250	16,875
Support Staff for Administration (*e.g., secretarial*)	5,000	10,000	15,000
Fringe Benefits *(total for all groups)*	33,020	73,324	106,344
Other Personnel Costs	0	0	0
Total Existing Personnel Costs – Reassigned or Existing	**140,842**	**288,968**	**429,811**
Personnel – New Positions			
Faculty	0	65,000	130,000
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	33,291	66,582
Other Personnel Costs - Fabrication Staff Position	0	28,000	56,000
Total Existing Personnel Costs – New Positions	**0**	**126,291**	**252,582**
Start-up Costs - One-Time Expenses			
Library/learning resources	2,000	2,000	2,000
Equipment/Technology	3,000	12,000	12,000
Physical Facilities: Construction or Renovation	0	0	0
Other	1,000	1,000	1,000
Total Start-up Costs	**6,000**	**15,000**	**15,000**
Operating Costs – Recurring Expenses			
Supplies/Expenses			
Library/learning resources	2,000	2,000	2,000
Equipment/Technology - Startup $6000 per faculty	2,000	2,000	2,000
Travel	4,000	4,000	4,000
Other	10,000	10,000	10,000
Total Operating Costs	2,000	2,000	2,000
	20,000	**20,000**	**20,000**
GRAND TOTAL COSTS	**166,842**	**450,259**	**717,393**

B. FUNDING SOURCES *(projected as appropriate)*	First FY (New)	Second FY (New)	Third FY (New)
Tuition / State Funds SCH from table times $339.06 UG	184,449	380,064	649,176
Student Fees Tech Fee times SCH	29,920	59,840	94,160
Other Sources	28,000	28,000	28,000
GRAND TOTAL FUNDING	242,369	467,904	771,336
D. Projected Surplus/Deficit (+/-) (Grand Total Funding *minus* Grand Total Costs)	75,527	17,645	53,943

IX. Expenditures and Funding Sources Explanations

A. Expenditures
Personnel – Reassigned or Existing Positions

Given the nature of the overlap between the current M.IAPD degree and the M.INDD degree, only a few faculty would need to be reassigned a portion of their FTE.

Reassigned to the Master of Industrial Design Program:

David Brown	.25 FTE	Mekin Elçioğlu	.50 FTE
Kendra Kirchmer	.50 FTE	Nathan Howe	.35 FTE

Existing Positions:

Steve Davidson	.25 FTE	Aziza Cyamani	.50 FTE
Chris Fein	.25 FTE	Neal Hubbell	.50 FTE
Hernan Gregorio	.75 FTE	Katrina Lewis	.50 FTE
Robyn Gibson	1.0 FTE	Michael McGlynn	.25 FTE

Regarding the instructor with the baccalaureate degree: as this Master's degree is a 5-year program, with no Bachelor's option, students take up to around 120 hours as undergraduate status; this faculty member will only be teaching in this undergraduate realm. The department does have a completed "equivalent experience" document filed with the Provost's office indicating that this instructor meets all criteria to teach.

Personnel – New Positions

Over the course of the first three years of the added Industrial Degree path, there would be increased income to the department due to added credit hour production and shared percentage of credit hours outside the department taken by the industrial design students. In the first year this would yield ~$100,000. The second and third year of the program the yield would increase by ~$150,000 for each year. Three additional faculty hires would need to be made, one in the second year and another two in the third year. This additional income from increased credit hour production would be used to justify the need for these hires.

With the addition of more Workshop courses we would need additional staffing in our fabrication lab. This would amount to a full-time technical staff position.

Start-up Costs – One-Time Expenses

There are few startup costs needed for this degree path. Seaton and Regnier Halls were designed to increase enrollment from 700-850. Impact of additional students would only add a need for additional studio desks, work benches in the workshop, and 10 additional seats in the computer lab.

The only other start-up costs would be seen in equipment and startup packages for the three new faculty. Over the course of the first three years, this would amount to $6,000 for each new faculty member.

Operating Costs – Recurring Expenses

The current department operating costs are approximately $50,000 per year; the additional $20,000 per year reflected above is an estimate of the general operating expenses the additional faculty and student body administration would incur.

B. Revenue: Funding Sources

The increased semester credit hour production is the major funding source. A few core courses taken by both design degree programs would increase semester credit hour production with no additional funding source.

Additionally, there is a $55 technology fee for each semester credit hour. The estimated technology fee produced with this new degree program would be: year one, $30,000; year two, $60,000; and year three, $100,000. These funds would be targeted to defray the start-up costs.

C. Projected Surplus/Deficit

Given projected enrollment numbers, increase in semester credit hour production, and the leveraging of current courses within college and department, there is no perceived deficit. Over the course of 3 years the total projected surplus of approximately $150,000 is after the addition of new personnel expenses. If the entire 5-year program is considered with the additional semester credit hour production, the surplus would be approximately an additional $500,000.

X. References

Job Outlook. (2018). *Job outlook for: industrial designers.* Retrieved from https://job-outlook.careerplanner.com/Industrial-Designers.cfm

Kansas Department of Commerce. (2017). *Kansas data book 2017.* Retrieved from https://www.kansascommerce.gov/wp-content/uploads/2018/11/DB2017.pdf

Nichols, Bonnie. (2013). *Valuing the art of industrial design.* Retrieved March 22, 2019 National Endowment for the Arts. Arts.gov

Occupational Employment Statistics (2018). *Occupational employment and wages, May 2018, 27-1021 Commercial and Industrial Designers.* Retrieved from https://www.bls.gov/oes/current/oes271021.htm#st

Figures

Figure 1. Interior Architecture and Product Design. (2019). *Map of United States industrial design degree programs.*

Figure 2. Occupational Employment Statistics (2018). *Occupational employment and wages, May 2018, 27-1021 Commercial and Industrial Designers.* Retrieved from https://www.bls.gov/oes/current/oes271021.htm#st

University of Kansas Medical Center

Bachelor of Science in Diagnostic Science

Program Approval

I. General Information

A. Institution KU Medical Center

B. Program Identification

Degree Level:	Bachelor's Degree
Program Title:	Diagnostic Science
Degree to be Offered:	BS
Responsible Department or Unit:	Department of Respiratory Care and Diagnostic Science
CIP Code:	#51.0999
Modality:	Face-to-Face
Proposed Implementation Date:	Fall 2020

Total Number of Semester Credit Hours for the Degree: 120 total and 42-60 concentration

II. Clinical Sites: Does this program require the use of Clinical Sites? [yes]

The proposed **Bachelor of Science (BS)** degree will transition the current three certificate programs (Cardiovascular Sonography, Diagnostic Ultrasound, and Nuclear Medicine) toward a bachelor's degree. These existing programs have a clinical site structure that is predominately within the University of Kansas Health System (UKHS). Also, there are 2-3 clinical sites in health facilities within the Kansas City metropolitan area. This BS program will serve as a collaborative degree offering between KUMC, KU-Edwards, and KU-Lawrence campuses.

III. Justification

The proposed BS degree is intended as an option for a diverse population of health care professionals. Health care systems are a large and complex industry composed of a wide collection of practice domains that must be integrated to deliver quality care across the lifespan, and in the context of rapidly changing knowledge. The BS program of study intentionally is designed to be flexible, to accommodate multiple content concentrations while providing enhanced academic training and the highest quality clinical experiences. The BS program will enable undergraduate students to specialize in a healthcare field leading to 100% job placement. Graduates from this program will be able to pursue further training in related health care and academic fields including graduate school, clinical doctorates, medical doctorates, or academic and administrative studies suited to their area of emphasis.

The BS degree will serve as a compelling option for academic preparation for many of the KU undergraduate students seeking health-related careers. Currently, students enroll in certificate programs (in Cardiovascular Sonography, Diagnostic Ultrasound, and Nuclear Medicine) consisting of 42-60 credit hours of didactic and clinical coursework. Further, these credit hours do not apply to transferrable college credit even though the curriculum is mandated by their respective medical-specialty accrediting agencies. Therefore, we have designed BS concentrations that are organized around a central core of undergraduate courses, and will build on current undergraduate prerequisite courses offered on KU Edwards or KU Lawrence campuses. The synergy between KU Edwards, KU-Lawrence, and KUMC programs will help students matriculate into a unique BS upon completion of specialized courses and clinical training on the KUMC campus. This option will help prepare students to

complete a degree leading to a job upon graduation, rather than graduating and then returning to complete a 12-21 month certificate program.
The additional BS degree program will be housed in the existing Respiratory Care and Diagnostic Science (RCDS) department, expanding on the two current possible concentrations in respiratory care by addition of three concentrations in diagnostic science, as listed below. The RCDS department was formed on the foundation of a well-established Respiratory Care bachelor's degree program with a rich history of providing healthcare graduates to Kansas for over 40 years. Currently, approximately 90% of the students enrolling in the current Respiratory Care program are from Kansas, and most stay in the State upon graduation.

Current and Proposed degree programs and concentrations in RCDS:

A. Current: Bachelor's of Science in Respiratory Care
Current Respiratory Care Concentrations:
- Respiratory Care Education (Direct Entry Bachelor's Degree)
- Respiratory Care Education (Associates + RRT to Bachelor's Degree)

B. Proposed: Bachelor's of Science in Diagnostic Science
- Cardiovascular Sonography (Direct Entry Bachelor's Degree)
- Diagnostic Ultrasound & Vascular Technology (Direct Entry Bachelor's Degree)
- Nuclear Medicine Technology (Direct Entry Bachelor's Degree)

Creating a new bachelor's degree that includes these three content tracks will fortify the integrated healthcare education environment in Kansas. This rich interprofessional learning experience will enhance the training of the BS graduates, by providing the advanced technical and professional skills suited for the healthcare workplace of the future. This academic setting also will create an interprofessional environment for the faculty of this program, through expanded opportunities for professional development and for collaborations in research endeavors and clinical practice.

IV. Program Demand and Benefit: Including Past and Current Student Survey

Hospitals in Kansas have a consistent demand to fill job vacancies in the specialized areas of the three Diagnostic Science programs. A review of 11 remaining programs in the Midwest United States from varied specialties shows that 8 are degree granting and 3 are certificate programs. Two of the degree granting programs are at the associate's degree level and six offer bachelor's degrees. Also, there are two programs offering a bachelor's degree that provides a master's degree option.

Results of a survey from 35 current students and recent graduates provides descriptive information regarding the attractiveness of a BS degree and can be found in *Appendix A.* Almost all (97%) indicated they currently hold a bachelor's degree. A majority (77%) currently enrolled in a certificate program indicated they would like to see that training offered as a bachelor's degree. Further, 86% of the current and past students reported they would have chosen to pursue a healthcare bachelor's degree over a certificate program if they were aware of such a degree program early in their academic career.

Many students graduate from four-year degree programs in Kansas with generalist undergraduate degrees, then later find they must return to educational programs and assume additional debt to be prepared to work in the healthcare field. Historically, over 60% of all students who have enrolled in the three existing certificate programs already possessed a bachelor's degree. Some students choose to earn a second bachelor's degree focused in their specialization, and they are likely to spend over $25,000 on tuition and fees to obtain that training. Others choose a certificate program and enroll in 12 - 21 months of rigorous didactic and clinical curricula. Upon completion of

a certificate program, however, a graduate does not earn an academic degree nor are any of these certificate credits transferable to other academic degrees, programs, or institutions. For instance, a post- baccalaureate who chooses to pursue a medical technology certificate may spend $6,000 - $17,000 and enroll in 40-60 hours of coursework. These course credits also, generally, are not transferrable toward a degree should this student subsequently choose to pursue an advanced academic degree. The proposed BS degree will provide a compelling, attractive, and viable option to undergraduate students planning healthcare careers. Upon completing the BS course of study, students will not only have the academic credentials, but will have met all criteria required to obtain the license and credentialing necessary to practice in a healthcare setting in Kansas.

From the financial aid perspective, the BS program has clear benefits for the students and for risk-reduction by the institution. Enrollment in a bachelor's degree rather than a certificate program simplifies the process for seeking financial aid and offers more options for obtaining support. Although eligible for financial aid, certificate students seeking federal aid are subject to specific requirements and, if all requisite documentation is not secured, the institution's financial aid status is placed at risk.

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

Table 1. Projected Enrollment

Year		Headcount Per Year		Sem Credit Hrs Per Year	
		Full- Time	Part-Time	Full- Time	Part-Time
Implementation	(AY 2020-21)	15	0	450	0
Year 2	(AY 2021-22)	15	0	900	0
Year 3	(AY 2022-23)	15	0	900	0

***NOTE:** Students arrive for this degree program during their junior year.

VI. Employment

Job growth in the Diagnostic Science fields is expected to increase between 13% and 24% (depending on the specialty) over the next decade[1]. At this same time, some health professions accrediting agencies are eliminating certificate-only programs. Having KU Medical Center's current certificate programs shift to a degree-granting program proactively will anticipate the need for diagnostic technologists trained in an accredited program, fulfill the emerging needs in academic education, and allow our graduates to compete with other bachelor's degree specialists. Our graduates will possess a healthcare-related bachelor's degree and will be eligible for national certification in their area of health care concentration.

This degree option can improve the opportunity for a more rapid career advancement and markedly enhance the prospects for higher immediate salaries with a concurrent return on investment, as well as a greater life-time earning potential. There clearly are advantages to a rapid return on educational investment in an acknowledged growth profession. The Bureau of Labor Statistics report a median annual income of $49K (Cardiovascular Technologist;[2]), $65K (Medical Sonographer;[3]), and $70K (Nuclear Medicine Technologist;[4]) for the Kansas City region.

VII. Admission and Curriculum

A. Admission Criteria

Prior to entering the program students must complete two years of undergraduate college course work with an overall grade point average (GPA) of at least a 2.5 (on a 4.0 scale). Forty-six hours of prerequisite course work must be from an educational institution that is regionally accredited (Table 2). In addition, student transcripts must document an individual course grade of no less than "C" on each prerequisite course. Students will "shadow" a healthcare professional in the discipline they are applying for in order to learn more about the profession. The shadow experience should be at least two hours with a professional during clinical duties. A professional statement and 3 letters of professional reference will be required. Due to our current military degree advancement program, prior military experience in a medical capacity will be weighted favorably in admission decisions.

Table 2. Prerequisite Coursework (46 credit hours)

	Basic Sciences	
BIOL 240/241	Fundamentals of Human Anatomy *(w/ lab recommended)*	4 hrs
BIOL 246/247	Principles of Human Physiology *(w/ lab recommended)*	3 hrs
BIOL 200/203 or BIOL 400	Microbiology *(w/ lab recommended)*	3 hrs
CHEM 110 or CHEM 130	Introduction to Chemistry *(w/ lab recommended)*	3 hrs
PHSX 111 or PHSX 114	Introduction to Physics	3 hrs
	Mathematics	
MATH 101	College Algebra	3 hrs
MATH 365	Elementary Statistics	3 hrs
	English	
ENGL 101	English Composition	3 hrs
ENGL 102 or BUS 105	Critical Reading & Writing or Business Writing	3 hrs
	Oral Communication	
COMS 130	Speaker-Audience Communication	3 hrs
	Humanities	
HWC 2014	Western Civilization (*preferred*)	3 hrs
PHIL 140 or PHIL 160	Intro to Philosophy (*preferred*)	3 hrs
	Social Sciences	
PSYC 104	General Psychology (*preferred*)	3 hrs
SOC 104	Sociology (*preferred*)	3 hrs
	Other	
HEIM 230	Medical Terminology	3 hrs

B. Curriculum (3 specializations)

Cardiovascular Sonography Specialization - There are two tracks in the Cardiovascular Sonography specialization.

Adult Echocardiography & Vascular Track: The BS with an **Adult Echocardiography & Vascular Track** at KU Medical Center is an entry-level professional degree program, offered as a full-time, two-year (5 semester) course of study at the undergraduate level and includes academic, practicum, and clinical preparation. This is an entry-level program that has been designed to provide entering students with the additional skills necessary to prepare them for a successful career as a credentialed Registered Diagnostic Cardiac Sonographer (RDCS) and Registered Vascular Technologist (RVT). Practicum and clinical experiences are offered throughout the Kansas City metropolitan area.

Degree Requirements

- Successful completion of all listed prerequisites (Table 2).
- Cumulative grade-point average (GPA) of at least 2.5 for all KU undergraduate coursework.
- Successful completion of all required clinical hours.
- Successful completion of all listed courses (Table 3).
    - Clinical course credit hours (58)

Table 3: Cardiovascular Sonography (Adult Echocardiography & Vascular Track) Curriculum

Year 1 Fall	Year 1 Spring	Year 1 Summer
CVSG 400: Cardiovascular Anatomy & Physiology (1)	CVSG 530: Adult Echocardiography I (4)	CVSG 535: Adult Echocardiography II (5)
CVSG 500: EKG I (1)	CVSG 415: Physics II (2)	CVSG 610: Clinical Practicum III (2)
CVSG 505: Patient Care I (1)	CVSG 605: Clinical Practicum II (7)	CVSG 515: Congenital Heart Disease (1)
CVSG 410: Physics I (2)	CVSG 510: CV Assess. and Special Procedures (1)	
CVSG 600: Clinical Practicum I (7)		

Year 2 Fall	Year 2 Spring		
CVSG 405: Vascular Anatomy & Physiology (1)	CVSG 560: Vascular Ultrasound II (5)		
CVSG 550: Vascular Ultrasound I (4)	CVSG 620: Clinical Practicum V (7)		
CVSG 615: Clinical Practicum IV (7)			
	Pre-reqs = 46		
	Electives = 16		
	CVS hours = 58		
	Degree total hours =120		

Adult & Pediatric Echocardiology track: The BS with an **Adult & Pediatric Echocardiology track** at KU Medical Center is an entry-level professional degree program, offered as a full-time, two-year (5 semester) course of study at the undergraduate level and includes academic, practicum, and clinical preparation. This is an entry-level program that has been designed to provide entering students with the additional skills necessary for a successful career as a credentialed Registered Cardiac Sonographer with specialty training in pediatric echocardiography (PE) through ARDMS. Practicum and clinical experiences are offered throughout the Kansas City metropolitan area.

Degree Requirements

- Successful completion of all listed prerequisites (Table 2).
- Cumulative grade-point average (GPA) of at least 2.5 for all KU undergraduate coursework.
- Successful completion of all required clinical hours.
- Successful completion of all listed courses (Table 4).
    - Clinical course credit hours (58)

Table 4: Cardiovascular Sonography (Adult & Pediatric Echocardiology Track) Curriculum

Year 1 Fall	Year 1 Spring	Year 1 Summer
CVSG 400: Cardiovascular Anatomy & Physiology (1)	CVSG 530: Adult Echocardiography I (4)	CVSG 535: Adult Echocardiography II (5)
CVSG 500: EKG I (1)	CVSG 415: Physics II (2)	CVSG 610: Clinical Practicum III (2)
CVSG 505: Patient Care I (1)	CVSG 605: Clinical Practicum II (7)	CVSG 515: Congenital Heart Disease (1)
CVSG 410: Physics I (2)	CVSG 510: Assess. and Special Procedures (1)	
CVSG 600: Clinical Practicum I (7)		

Year 2 Fall	Year 2 Spring		Professional Skills in Healthcare
CVSG 420: Pediatric Anatomy and Physiology (1)	CVSG 575: Pediatric Echo II (5)		
CVSG 570: Pediatric Echo I (4)	CVSG 620: Clinical Practicum V (7)		
CVSG 615: Clinical Practicum IV (7)			
	Pre-reqs = 46		
	Electives = 16		
	APE hours = 58		
	Degree total hours = 120		

Diagnostic Ultrasound & Vascular Technology Specialization

The BS with and **Diagnostic Ultrasound & Vascular Technology** specialization at KU Medical Center is an entry-level professional degree program, offered as a full-time, two-year (5 semester) course of study at the undergraduate level and includes academic, practicum, and clinical preparation. This is an entry-level program that has been designed to provide entering students with the additional skills necessary for a successful career as a credentialed Registered Diagnostic Medical Sonographer (RDMS) with specialty training in Ultrasound and Vascular Sciences through ARDMS. Practicum and clinical experiences are offered throughout the Kansas City metropolitan area.

Degree Requirements

- Successful completion of all listed prerequisites (Table 2)
- Cumulative grade-point average (GPA) of at least 2.5 for all KU undergraduate coursework
- Successful completion of clinical hours
- Successful completion of all listed courses (Table 5)
    - Clinical course credit hours (60)

Table 5: Diagnostic Ultrasound & Vascular Technology curriculum

Year 1 Fall	Year 1 Spring	Year 1 Summer
DUVT 300: Intro to Sono Diagnostic & Medical Law Ethics (3)	DUVT 415: Advanced Sonography: Principles & Instrumentation (3)	DUVT 520: Vascular Technology I (3)
DUVT Sonography: Principles & Instrumentation (3)	DUVT 425: Women's Imaging II (3)	DUVT 410: Abdominal Sonography III (2)
DUVT 500: Abdomen and Small Parts I (3)	DUVT 405: Abdomen II (3)	DUVT 610: Clinical Internship III (3)
DUVT 420: Women's Imaging I (2)	DUVT 510: Small Parts Sonography (Breast) (1)	
DUVT 600: Clinical Internship I (3)	DUVT 605: Clinical Internship II (4)	

Year 2 Fall	Year 2 Spring		
DUVT 515: Vascular Technology II (2)	DUVT 655: Senior Seminar II (4)		
DUVT 650: Senior Seminar I (3)	DUVT 625: Clinical Internship V (8)		
DUVT 620: Clinical Internship IV (7)			
	Pre-reqs = 46		
	Electives = 14		
	DUVT hours = 60		
	Degree total hours = 120		

Nuclear Medicine Technology Specialization

The BS with **Nuclear Medicine Technology** specialization at KU Medical Center is an entry-level professional degree program, offered as a full-time, one-year (3 semesters) course of study at the undergraduate level and includes academic, practicum, and clinical preparation. This is an entry-level program that has been designed to provide entering students with the additional skills necessary to prepare them for successful careers as credentialed Registered Nuclear Medicine Technologists. Credentialing is through the American Registry of Radiologic Technologists (ARRT) and the Nuclear Medicine Technology Certification Board (NMTCB). Practicum and clinical experiences are offered throughout the Kansas City metropolitan area.

Degree Requirements

- Successful completion of all listed prerequisites (Table 2)
- Successful completion of 42 hours of upper level course work
- Cumulative grade-point average (GPA) of at least 2.5 for all KU undergraduate coursework
- Successful completion of all required clinical hours
- Successful completion of all listed courses (Table 6)
    - Clinical course credit hours (42)

Table 6: Nuclear Medicine Technology curriculum

Year 1 Fall	Year 1 Spring	Year 1 Summer
NMED 305: Intro to Nu Med, Medical Law and Ethics (3)	NMED 520: Nuclear Instrumentation, Med. Informatics & Quality Assurance (2)	NMED 620: Seminar (2)
NMED 510: Nuc Chem & Physics (2)	NMED 405: Radiopharmacy II (1)	NMED 615: Clinical Internship III (6)
NMED 400: Radiopharmacy I (3)	NMED 505: Clinical Procedures II (5)	
NMED 500: Clinical Procedures (3)	NMED 610: Clinical Internship II (8)	
NMED 605: Clinical Internship (6)		
NMED 300: Intro to Healthcare (1)		
	Pre-reqs = 46	
	Electives = 32	
	Nuclear Med. hours = 42	
	Degree total 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
Turi Wiedner	Clinical Instructor	Masters	N	Program Director* Cardiovascular Sonography and Diagnostic Ultrasound & Vascular Technology	1.0
Kellee George	Adjunct Clinical Instructor	Masters	N	Program Director* Nuclear Medicine Technology	0.5
Vicky Martin	Adjunct Clinical Instructor	Masters	N	Clinical Coordinator Cardiovascular Sonography and Diagnostic Ultrasound & Vascular Technology	0.5
TBD	Adjunct Instructor	Masters	N	Instructor	0.5
TBD	Adjunct Instructor	Bachelors	N	Instructor	0.25
TBD	Adjunct Instructor	Bachelors	N	Instructor	0.25

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

IX. Expenditure and Funding Sources

A. EXPENDITURES	First FY	Second FY	Third FY
Personnel – Reassigned or Existing Positions			
Faculty	157,500	215,250	220,632
Administrators *(other than instruction time)*			
Graduate Assistants			
Support Staff for Administration (*e.g., secretarial*)			
Fringe Benefits *(total for all groups)*	45,164	61,185	62,175
Other Personnel Costs			
Total Existing Personnel Costs – Reassigned or Existing	202,664	276,435	282,807
Personnel – New Positions			
Faculty			
Administrators *(other than instruction time)*			
Graduate Assistants			
Support Staff for Administration (*e.g., secretarial*)	22,500	23,063	23,639
Fringe Benefits *(total for all groups)*	7,738	7,841	7,947
Other Personnel Costs			
Total Existing Personnel Costs – New Positions	30,238	30,904	31,586

Start-up Costs - One-Time Expenses			
Library/learning resources			
Equipment/Technology	4,000		
Physical Facilities: Construction or Renovation			
Other			
Total Start-up Costs			
Operating Costs – Recurring Expenses			
Supplies/Expenses		5,000	5,000
Library/learning resources			
Equipment/Technology		20,000	30,000
Travel		3,000	3,000
Other: (recruitment and advertising)		2,000	2,000
Total Operating Costs		30,000	40,000
GRAND TOTAL COSTS	236,902	337,339	354,393

B. FUNDING SOURCES *(projected as appropriate)*	Current	First FY (New)	Second FY (New)	Third FY (New)
Tuition / State Funds		150,750	281,400	301,500
Student Fees		30,990	57,848	61,980
Other Sources: (transfer current cert. program's RFF)		30,000		
Other Sources: (cert. program teach-out)		44,750	44,750	
GRAND TOTAL FUNDING		256,490	383,998	363,480
A. Projected Surplus/Deficit (+/-) (Grand Total Funding *minus* Grand Total Costs)		19,588	46,660	9,087

X. Expenditures and Funding Sources Explanations

A. Expenditures

Personnel – Reassigned or Existing Positions

We plan to reassign current program directors and instructors to newly established state budget lines. We expect all faculty will possess the required degree per accreditation standards and practice credentials, with a background in relevant healthcare settings.

Personnel – New Positions

We plan to hire a single administrative staff position at 0.50 FTE. (Please see below.)

Pre-launch AY

1) There will not be a faculty cost associated with pre-launch, as the current Department Chair will work with current certificate program directors on developing bachelor's level curriculum from their current certificate course curriculum. This will be a planned and gradual process over an approximate one-year period.
2) Administrative staff (FTE 0.5): This individual is essential to support the Program Directors and Department Chair in organizing and development of the bachelor's curriculum and to interface with potential students. Also, this individual will communicate with additional clinical affiliate sites as needed. The pre-launch administrative staff cost can be covered by the current certificate program's RFF budget.

First AY

1) Program Director #1 (FTE 1.0): This non-tenure track, modified title (Clinical) faculty position will be the Program Director for the Cardiovascular Sonography and Diagnostic Ultrasound & Vascular Technology programs. A Program Director that serves two programs will be a cost-effective solution since both didactic and clinical courses can be taught by personnel from either specialty. Therefore, we can eliminate duplication of courses and instructors. The Program Director must possess certification as a Cardiovascular Sonographer with practice credentials to meet accreditation requirements. This person also will possess a master's degree.
2) Program Director #2 (FTE 0.5): This adjunct faculty position will be the Program Director for the Nuclear Medicine Technology program. This Program Director can serve in a mixed academic and clinical capacity; therefore, serving as an academic capacity of 0.5 FTE. The Program Director must possess certification as a Nuclear Medicine Technologist with practice credentials to meet accreditation requirements. This person also will possess a master's degree.
3) Clinical Coordinator (FTE 0.5): This adjunct clinical instructor position primarily will focus on developing relationships with clinical affiliates and supervisors and coordinating contracts with those sites according to institutional protocols. This faculty member will possess a master's degree; the role will involve a limited degree of teaching.
4) Faculty – other (FTE 0.25): This adjunct instructor position will provide foundation content for first year students. This content is essential to form a basic understanding of the principles needed prior to patient contact. This faculty member will possess a bachelor's or master's degree and be hired as an adjunct instructor.

Second AY:

1) Faculty – other (FTE 0.5): This adjunct instructor position will provide foundation content for first year students. Also, this instructor will provide clinical simulations and serve as a clinical instructor in clinical affiliate site(s). This faculty member will possess a bachelor's or master's degree and be hired as an adjunct instructor.
2) Faculty – other (FTE 0.25): This adjunct instructor position will provide foundation content for first year students. Also, this instructor will provide clinical simulations and serve as a clinical instructor in clinical affiliate site(s). This faculty member will possess a bachelor's or master's degree and be hired as an adjunct instructor.

Start-up Costs – One-Time Expenses

Existing computers and desks can be used for faculty and instructors during the first year. A personal computer ($2K) and desk ($2K) will be needed for the administrative assistant. Two sets of computers and desks will be purchased in the 2nd year for the 2 adjunct instructor positions.

Operating Costs – Recurring Expenses

1) Supplies: All 3 programs require medical supplies during all semesters. These supplies are used during practice with the diagnostic tests required for each discipline.
2) Travel: Funds will be needed to support faculty travel for on-site visits to potential clinical sites and later to attend professional meetings focused on best teaching and clinical practices for students.
3) Other – OOE:
   a. *Accreditation costs, clinical lab equipment, office supplies, office equipment*: Accreditation costs for annual renewal and periodic site visits. Ongoing expenses will be needed for clinical lab equipment, computers, and software. Regular office supplies and equipment will be required for routine operations.
   b. *TYPHON*: This comprehensive software platform allows for efficient tracking of student clinical placements, student performance at these placements, and feedback from supervisors about students. This documentation is useful in planning the clinical placements and also will provide a source for documentation required by the accreditation process.
   c. *Travel to recruit clinical sites/preceptor training*: Faculty will need to establish relations with clinical training sites, to engage regularly with on-going relations, and to train new preceptors prior to training of students at each site. These activities will be conducted virtually, when possible, although we anticipate a need for in-person contact during the initial phases of program implementation and when establishing a new clinical site.
   d. *Recruitment/advertising*: We will support recruiting of new students through visits to campuses and military bases, career fairs, and alumni publications, and we will purchase advertising in at least one nationally-visible venue.

B. Revenue: Funding Sources

The cost of the new degree program will be supported through a combination of funding sources. The SHP Dean's office is committed to providing some initial support for this program in Year 01, by means of the current certificate program's RFF funds. Current and on-going enrollment in the certificate programs will provide revenue during the pre-launch year. Subsequent costs will be offset by tuition revenue and student fees.

The tuition rate and student fees will be similar to other bachelor's-level courses in the School of Health Professions. Course fee revenue ($55 per credit hour) will be managed in a restricted fee (RFF) account set up for this specific purpose. Course fees will be used for maintaining equipment for students, clinical preceptor costs for students, and practice registry tests.

C. Projected Surplus/Deficit

Given these sources, the program is expected to have a positive revenue stream at the end of the 1st year (FY2022) as detailed in Section IX, Expenditures and Funding Sources.

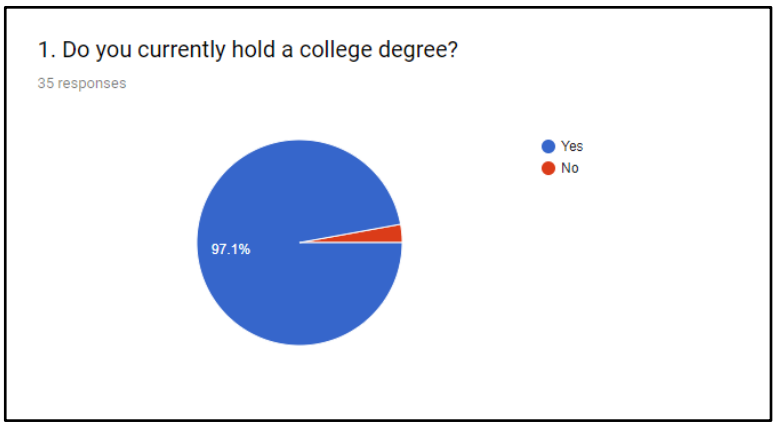
XI. References

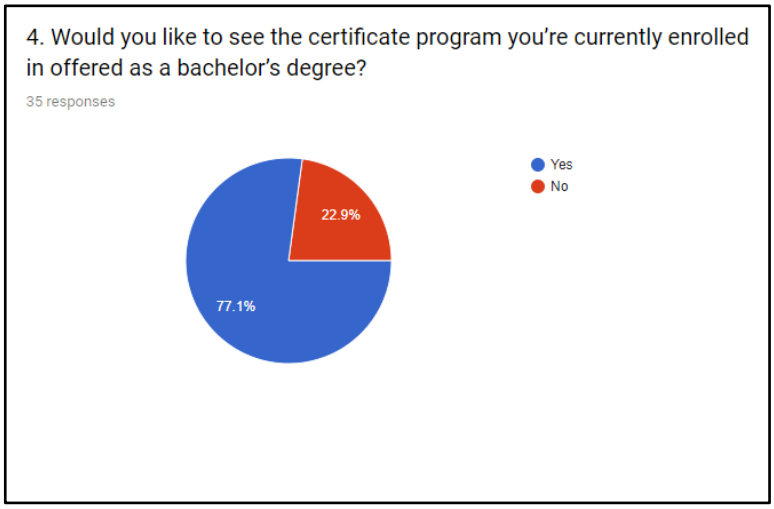
Employment:

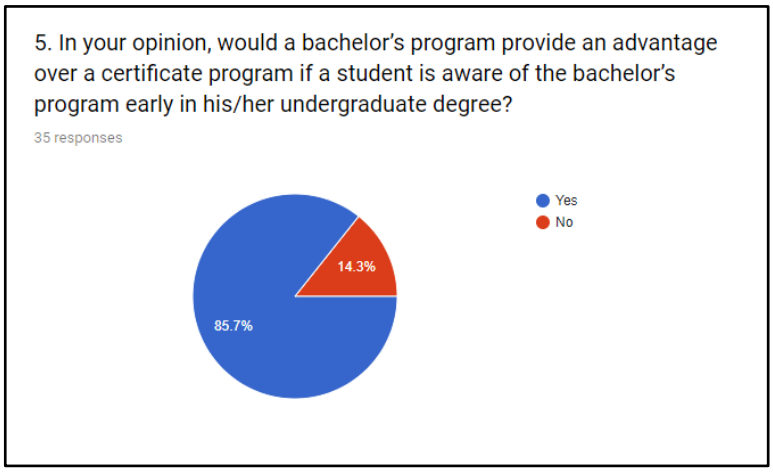
1. Statistics, U.S.B.o.L. *Healthcare / Diagnostic Sonographers & Cardiovascular Technologists.…* 2015 12/17/2015 [cited 2015 Dec 11]; Available from: https://www.bls.gov/ooh/healthcare/diagnostic-medical-sonographers.htm.

2. Statistics, U.S.B.o.L. *Healthcare / CVTs in Kansas*. 2015 May 2016 [cited 2016 May]; Available from: https://www.bls.gov/oes/current/oes292031.htm.

Appendix A: Past and Current Certificate Program Survey Results
*NOTE: All survey results with responses to open-ended questions can be found in accompanying document, "*Survey Results*".







Wichita State University

Doctor of Philosophy in Biomedical Engineering

Program Approval

I. General Information

A. Institution Wichita State University

B. Program Identification

Degree Level:	Doctoral Program (Ph.D.)
Program Title:	Graduate Biomedical Engineering Program
Degree to be Offered:	Doctor of Philosophy in Biomedical Engineering
Responsible Department or Unit:	Department of Biomedical Engineering
CIP Code:	14.0501
Proposed Implementation Date:	Fall 2019

Total Number of Semester Credit Hours for the Degree: 72

II. Justification

Wichita State University proposes the development of a Doctor of Philosophy (Ph.D.) degree in Biomedical Engineering (BME); this offering is to be housed in the Biomedical Engineering Department. The proposed Ph.D. program seeks to provide students with a fundamental understanding of the application of engineering principles to biomedical research with an emphasis on translational research.

Biomedical engineers apply modern approaches of engineering and design concepts to biology and medicine for use in healthcare (Study.com). Individuals who obtain a Ph.D. will use their broad knowledge of engineering and medical biological sciences, in conjunction with theoretical and computational methods from the disciplines of mathematics and computer science, to make improvements in healthcare therapy, diagnosis, and monitoring. Biomedical engineers apply life sciences to finding solutions to biomedical problems. WSU's Ph.D. in BME will provide unique curriculum concentration areas of bio-computational modeling and devices, innovation and translational BME, along with the unique research emphasis of wearable biosensors.

There are many career disciplines related to biomedical engineering. Some of the typical ones include many of the engineering disciplines (e.g., bioengineering, chemical, mechanical, electrical, aerospace, materials, etc.), science disciplines (e.g., biology, chemistry), and academia.

This plan of study contains a minimum of 72 semester credit hours (sch), including coursework and dissertation. This program will admit students directly from a bachelor's degree; these students would need the full 72 sch for the Ph.D. degree. A maximum of 24 sch may be transferred from a graduate program into this doctoral program.

III. Program Demand: Market Analysis

According to the Bureau of Labor Statistics, employment of biomedical engineers is expected to grow seven percent from 2016 to 2026, with growth coming from new technologies and applications to medical devices. WSU is well placed to serve the needs of the region, as outlined in the Blueprint for Regional Economic Growth (Blueprint) of South Central Kansas regarding opportunities for growth in healthcare.

The proposed Ph.D. in BME program will be unique at Wichita State University; no other program combines engineering, science and health, and innovation with interdisciplinary, translational research. Among the Kansas Regents institutions, Kansas State University has a Ph.D. program in Biological and Agricultural Engineering. However, the emphasis area in this program is different from the concentration areas proposed in the WSU BME Ph.D. program. The Department of Biological and Agricultural Engineering at KSU offers a Ph.D. in Engineering where students may specialize in environmental engineering, information and electrical technology, bioprocessing engineering, machinery systems, natural resource engineering, or

structure and environment. Contrastingly, WSU's proposed Ph.D. in BME emphasizes utilization of engineering principles and expertise to analyze and solve problems in biology and medicine, thereby providing overall enhancements of health care; program emphasis areas do not overlap in agricultural applications, as evidenced in KSU's doctoral program. The emphases of WSU's program include:

- Biomaterials and Tissue Engineering;
- Molecular and Cell Bioengineering;
- Biomechanics and Rehabilitation Engineering;
- Biocomputational Modeling and Devices; and
- Innovation and Translational Biomedical Engineering, as it relates to improving health care.

The University of Kansas has an existing Bioengineering graduate program, with similar emphasis areas of Biomaterials and Tissue Engineering, Biomolecular Engineering, and Biomechanics. However, the proposed WSU Ph.D. in biomedical engineering program has unique concentration areas and research emphases such as bio-computational modeling and devices, innovation and translational biomedical engineering, and wearable biosensors.

Several regional institutions have Ph.D. programs with similar names, including The University of Nebraska, the University of Missouri, and the University of Arkansas. Although these institutions have some similarity to this proposed program, WSU's concentration areas set this program apart from the others.

To ascertain interest in this program, an online survey was conducted of WSU undergraduate students in Engineering (BME, Industrial, Mechanical, Electrical, Aerospace), Chemistry, Biology and Exercise Science. When asked if they would be interested in a BME master's or Ph.D. Program, 48% (N=165) responded as being interested in both master's and Ph.D. program and 9% (N=l65) were interested in the Ph.D. program only. Thus, it is very likely that the Ph.D. program would attain the minimum 5 students within three years after the inception of the program.

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

Year	Headcount		Semester Credit*	
	Full-Time	Part-Time	Full-Time	Part-Time
Implementation	1	0	18	0
Year 2	3	0	72	0
Year 3	6	0	180	0

* Based on 9 semester credit hours per semester (18 per year) for three years

V. Employment

There has been a steady increase in employment of Biomedical Engineers and demand is expected to increase regionally and nationally. The U.S. Department of Labor's Bureau of Labor Statistics Occupational Outlook Handbook indicates Biomedical Engineering employment will experience 7% job growth from 2016 to 2026 (BOL). Bioengineering has been named the #1 best job in America (CNN). The Kansas City Area Life Science Institute found that 70% of medical device firms and 36% of companies in drugs and pharmaceutical and biotechnology research and testing reported employment increases in the previous three years. Students who graduate from WSU's Ph.D. program may pursue careers in healthcare and as consultants to government, non-profits, and industrial agencies; researchers; and faculty and professional staff in academic institutions. WSU has the advantage of providing experiential learning collaborations with manufacturing and healthcare, which are Wichita's #1 and #2 employment industry sectors.

VI. Admission and Curriculum

A. Admission Criteria

The minimum requirements for admission to the Ph.D. in Biomedical Engineering program include:

- A masters or bachelor's degree in a discipline relevant to biomedical engineering
  - A student entering the Ph.D. program directly from a bachelor's degree must have a cumulative GPA of 3.5.
  - A student entering the program after completing a master's degree must have a cumulative GPA of 3.25 for their master's degree coursework.

Additionally, students must submit:

- a statement of purpose,
- GRE scores,
- three letters of recommendation, and
- transcripts with documented completion of prerequisite courses.*

  * Prerequisite coursework includes: Biology I, Anatomy and Physiology, General Chemistry I, General Chemistry II, Physics I, Math (Calculus I, Calculus II, and Differential Equations), Circuits, Thermodynamics, Statics, Statistics, and a programming language.

B. Curriculum

Two plans of study are shown.

- The first is a full 72 semester credit hour program for students entering this program with a baccalaureate degree but no master's level courses to transfer into the program.
- The second shows the program for students who are able to transfer in the maximum number of semester credit hours from their master's degree program. (Note: 24 semester credit hours is the maximum number allowed. Hence, 24 semester credit hours transferred in plus 48 semester credit hours in this program = 72 semester credit hours for Doctor of Philosophy in Biomedical Engineering.)

Admitted Directly from Bachelor's Degree ……. 72 Semester Credit Hours (SCH)

Semester 1	**SCH**
BME 722 Introduction to Biorobotics	3
BME 752 Applied Human Biomechanics	3
IME 724 Statistical Methods for Engr's	3
BME XXX BME Seminar	0
Semester Total	**9**

Semester 2	**SCH**
BME 757 Clinical Biomechanics Instrumentation	3
IME 549 Industrial Ergonomics	3
BIOL 773 Statistical Methods in Biology	3
Semester Total	**9**

Semester 3	
IME 877 Foundations of Neural Networks	3
IME 754 Reliability and Maintainability Engr	3
IME 755 Design of Experiments	3
Semester Total	**9**

Semester 4	
ME 709 Injury Biomechanics	3
EE 782 Digital Signal Processing	3
BME 738 Biomedical Imaging	3
Semester Total	**9**

Semester 5	
IME 854 Quality Engineering	3
IME 767 Lean Manufacturing	3
ENTR 805 Technology Entrepreneurship	3
Semester Total	**9**

Semester 6	
ENTR 806 New Product Development	3
BME 976 PhD Dissertation	6
Semester Total	**9**

Semester 7	
BME 976 PhD Dissertation	9
Semester Total	**9**

Semester 8	
BME 976 PhD Dissertation	9
Semester Total	**9**

Admitted with Maximum Number of SCH Transferred from Master's Program …….. 48 SCH

Semester 1	**SCH**
BME 722 Introduction to Biorobotics	3
BME 752 Applied Human Biomechanics	3
IME 724 Statistical Methods for Engineers	3
BME XXX BME Seminar	0
Semester Total	**9**

Semester 2	**SCH**
BME 757 Clinical Biomechanics Instrumentation	3
BME 738 Biomedical Imaging	3
EE 782 Digital Signal Processing	3
Semester Total	**9**

Semester 3	
IME 877 Foundations of Neural Networks	3
IME 754 Reliability and Maintainability Engr	3
BME 976 PhD Dissertation	3
Semester Total	**9**

Semester 4	
BME 976 Ph.D. Dissertation	9
Semester Total	**9**

Semester 5	
BME 976 PhD Dissertation	9
Semester Total	**9**

Semester 6	
BME 976 PhD Dissertation	3
Semester Total	**3**

VII. Core Faculty

Faculty Name	Rank	Highest Degree	Tenure Track Y/N	Academic Area of Specialization	FTE to Proposed Program
Nils Hakansson Program Director	Assoc. Prof.	Ph.D.	Y	Musculoskeletal Biomechanics	1.0
Anil Mahapatra	Assoc. Prof.	Ph.D.	Y	Biomaterials, Metallic Implants	1.0
Kim Cluff	Assoc. Prof.	Ph.D.	Y	Muscle Damage, Raman Spectral	1.0
David Long	Asst. Prof.	Ph.D.	Y	Cellular & Molecular Bioengr	1.0
Jaydip Desai	Asst. Prof.	Ph.D.	Y	Brain-Machine Interface	1.0
Yongkuk Lee	Asst. Prof.	Ph.D.	Y	Human-Machine, Nano Biosensors	1.0
Michael Jorgensen	Assoc. Prof.	Ph.D.	Y	Occupational Biomechanics	.5
New Hire	TBD	Ph.D.	TBD	Biomedical Engineering	.5

Number of graduate assistantships assigned to this program……. 5

VIII. Expenditure and Funding Sources

A. EXPENDITURES	First FY	Second FY	Third FY
Personnel – Reassigned or Existing Positions			
Faculty	$ 572,396	$ 572,396	$ 572,396
Administrators *(other than instruction time)*			
Graduate Assistants			
Support Staff for Administration (*e.g., secretarial*)			
Fringe Benefits *(total for all groups)*	$ 146,638	$ 146,638	$ 146,638
Other Personnel Costs			
Total Existing Personnel Costs – Reassigned or Existing	$ 719,034	$ 719,034	$ 719,034
Personnel – New Positions			
Faculty	$ 85,000	$ 85,000	$ 85,000
Administrators *(other than instruction time)*			
Graduate Assistants	$ 48,000	$ 48,000	$ 48,000
Support Staff for Administration (*e.g., secretarial*)			
Fringe Benefits *(total for all groups)*	$ 27,200	$ 27,200	$ 27,200
Other Personnel Costs			
Total Existing Personnel Costs – New Positions	$ 160,200	$ 160,200	$ 160,200
Start-up Costs – One-Time Expenses			

Personnel Expenses Prior to FY I: Administration			
Personnel Expenses Prior to FY I: Faculty			
Personnel Expenses Prior to FY I: Support Staff			
Library/learning resources			
Equipment/Technology			
Physical Facilities: Construction or Renovation			
Other	$ 150,000	$ 150,000	$ 0
Total Start-up Costs	$ 150,000	$ 150,000	$ 0
Operating Costs – Recurring Expenses			
Supplies/Expenses	$ 20,000	$ 20,000	$ 20,000
Library/learning resources			
Equipment/Technology			
Travel			
Other			
Total Operating Costs	$ 20,000	$ 20,000	$ 20,000
GRAND TOTAL COSTS	$ 1,049,234	$ 1,049,234	$ 899,234

B. FUNDING SOURCES *(projected as appropriate)*	First FY (New)	Second FY (New)	Third FY (New)
Tuition / State Funds	$ 5,435	$ 21,739.68	$ 54,349
Student Fees	$ 2,369	$ 8,148	$ 18,374
Other Sources	$ 105,000	$ 105,000	$ 30,000
GRAND TOTAL FUNDING	$ 112,804	$ 134,888	$ 102,723
Projected Surplus/Deficit (+/-) (Grand Total Funding *minus* Grand Total Costs)	-936,430	-914,346	-796,511

IX. Expenditures and Funding Sources Explanations

A. Expenditures

Expenditures Overview

The Ph.D. in Biomedical Engineering program will add one tenure-track faculty line at a cost of $85,000/year and fringe of $27,000, five new graduate assistant positions at $48,000 annually, and an additional $20,000 in operating expenses. A start-up package of approximately $150,000 over two years will be provided to the new tenure-track faculty. Existing facilities are adequate to support the program, including library, advising, academic computing, and administrative support.

Personnel – Reassigned or Existing Positions

The current BME department faculty consist of 7 core faculty members. The core faculty currently teach and support both the undergraduate and MS BME program and will teach and support the proposed Ph.D. graduate program. The additional advising load will be shared among faculty.

Personnel – New Positions

The College of Engineering will fund a new tenure-track faculty line starting by Year 3, at a budgeted salary of $85,000 plus $27,200 in fringe benefits. One additional tenure-track faculty position would bring the total to 8 faculty to support the Ph.D. BME program (in addition to the baccalaureate and master's programs). Five new graduate assistants would be funded at a cost of $48,000 annually, which will be funded through Sedgwick Country Mill Levy funds and the College of Engineering.

The Department of Biomedical Engineering receives approximately $30,000 in funding from the Graduate School for graduate assistants ($18,000 of which comes from Mill Levy funds). The College of Engineering provides funding for start-up packages from the Engineering Expansion Grant (EEG) (estimated $150,000 total over two years for the new faculty hire). The EEG grant is available through Fiscal Year 22 (ends June 2022).

Start-up Costs – One-time Expenses

No initial additional equipment or library resources will be needed. Start-up costs of approximately $75,000 for two years ($150,000 total) will be provided from internal sources to add one additional tenure-track faculty line.

Operating Costs - Recurring Expenses

Operating costs of $20,000 annually are budgeted to support the doctoral program administrative needs. There are no anticipated additional advising, library, audio-visual, or academic computing resource needs or costs, and the current administrative support for the BME Department will be sufficient for the addition of the Ph.D. BME program to the BME Department.

B. Funding Sources

Tuition

Tuition for graduate Kansas residents is $301.94 per credit hour.

Fees

WSU student activity fees for graduate Kansas residents are $664.93 for full-time students and $443.30 for part-time students per semester. Per credit mandatory fees for all courses are $7.75. The College of Engineering has a $50 per credit fee for all credits taken. Funding will come from funds in the College of Engineering made available through Engineering College course fees to provide funding for the program.

X. References

BOL. Bureau of Labor Statistics & U.S. Department of Labor (2015). Occupational Outlook Handbook, 2016-17 Edition, Biomedical Engineer. Retrieved from: http://www.bls.gov/ooh/architecture-and-engineering/biomedical-engineers.htm.

Blueprint for Regional Economic Growth. (2016). Healthcare. Retrieved from: https://greaterwichitapartnership.org/living_working/healthcare

CNN Money. (2013). Best jobs in America. Retrieved from: https://money.cnn.com/pf/best-jobs/2013/full_list/index.html

Goudreaur, J. (2012, May 12). The 15 most valuable college majors. *Forbes.* Retrieved from: https://www.forbes.com/sites/jennagoudreau/2012/05/15/best-top-most-valuable-college-majors-degrees/#379e8da74dcc

Kansas City Area Life Sciences Institute, Inc. (2016). Kansas City Regional Life Sciences Industry Census – 2012. Retrieved from: http://www.kclifesciences.org/news/industry-census/

Study.com. (2018, July). Is a Ph.D. in biomedical engineering worth it? Retrieved from: https://study.com/articles/is_a_phd_in_biomedical_engineering_worth_it.html

SITE VISIT REPORT

WICHITA STATE UNIVERSITY

BIOMEDICAL ENGINEERING Ph.D. PROGRAM PROPOSAL

Brian Davis, Professor and Chair of Mechanical Engineering, Cleveland State University

Michael Detamore, Professor and Chair of Biomedical Engineering, University of Oklahoma

Shalini Prasad, Professor and Interim Chair of Biomedical Engineering, UT-Dallas

July 15-17, 2019

EXECUTIVE SUMMARY

There is an urgent and compelling need for a PhD program in Biomedical Engineering (BME) at Wichita State University (WSU). The BME PhD program will elevate the research productivity and quality in not only in Biomedical Engineering, but across Engineering and across campus. This BME PhD program will synergize with regional strengths in Wichita possibly including NIAR, the VA, the local biomedical industry and entrepreneurial environment, and the KU medical school.

It is essential that the leadership of Wichita State University lay the groundwork for long-term success for a PhD program in BME. National metrics from BME departments across the country must be infused into investments for a solid launch to the program. These investments include several faculty hires, additional teaching assistant positions, space, competitive stipends, support staff, and tuition assistance commensurate with national standards. In addition, a one-time infusion of funds to purchase equipment that can be shared between departments is recommended.

Additional faculty hires are essential for many reasons, including sharing undergraduate teaching load to free individual faculty bandwidth for proposal writing, PhD student research mentoring, and expanding the graduate course curriculum. Additional teaching assistant positions at the BME PhD stipend level are an essential startup investment to support not only the undergraduate enrollment growth, but more importantly to enable a successful start to support the demand for a strong first cohort of BME PhD students. Space is currently fragmented, with faculty and graduate students, creating a barrier to collaboration. It is recommended that the WSU leadership create contiguous space for BME collaborative research. Moreover, a mechanism for shared space with NIAR and BME is a strategic opportunity for investment in BME faculty with research at the interface with these two disciplines.

(1) Program Justification

The justification for the PhD BME program at Wichita State University and in the BME Department is appropriately defined. Wichita State University is Kansas' only major research university in a metropolitan area (not including the KU Medical Center campus). The team in their meetings with the Dean of Engineering, Associate Dean for Graduate Studies in CoE, The BME Department Chair, and with the Provost highlighted WSU's experiential learning collaborations with manufacturing and healthcare, which are Wichita's #1 and #2 employment industry sectors, respectively. The Provost emphasized that BME PhD would be able to lead the interdisciplinary translational research education in WSU. PhD in BME would bring together several internal public/ private constituents from local industry and NIAR to accelerate the discovery of new knowledge.

There was concern on the rationale for the PhD program in BME based on the Kansas City Area Life Science Institute 2012 census. The areas listed in the census, which were highlighted in the report were, drugs and pharmaceuticals, biotechnology research and testing, and medical devices. The team recommends the department focus on their core strengths in Biomechanics, Biosensors, Biomaterials and Devices to build out the PhD program

and appropriately recruit faculty to support their research enterprise.

The proposed PhD BME program aims to train "industry ready" PhD students to serve as a key economic driver in workforce, technology and innovation development supporting the healthcare industry in the Wichita, KS region.

WSU has clearly articulated their differentiation aspect in the regional peer and aspirational peer institutions; however, factors such as PhD student stipend amounts, tuition support and institutional support in terms of engineering educators and teaching load reduction for research active faculty must be considered for the growth, sustainability and the reputation of the program.

The majority of the core faculty have breadth of research and teaching experience already in place to support the majority of this proposed program, in addition to several BME Affiliated Faculty.

In discussion with the Dean of Engineering and the Department Chair of BME it was emphasized that the majority of WSU students and 70% of BME undergraduate students at WSU are from or within 30 miles of Wichita. Thus, locating a PhD in BME program in the BME Department at WSU provides additional educational opportunities for some students who want an advanced degree from a program with an interface to top industry sectors.

The proposed PhD in BME program will be unique at WSU as there are no other similar PhD programs at Wichita State University, especially ones that combine engineering, science and health, and innovation as part of the curriculum as well as enhancing interdisciplinary translational research. Among the Kansas Regents institutions, the University of Kansas and Kansas State University have graduate programs with similar names to the proposed PhD BME program at WSU but their emphases are in areas that are congruent to WSU's strengths.

RECOMMENDED ACTIONS: Leverage the current department strengths in Biomechanics, Biosensors, Biomaterials and Devices toward building a strong PhD program. In order to sustain the PhD program, competitive stipends and resources must be offered comparable to University of Kansas and Kansas State University, both of whom have graduate programs in Bioengineering and Biological & Agricultural Engineering, respectively. Teaching load reduction for research active faculty must be considered for the sustainability of the PhD program and for ensuring retention of faculty.

(2) <u>Curriculum</u>

The required curricula for the Ph.D. program was reviewed by the team. The Department has developed a graduate curriculum that is sufficiently rigorous in both breadth and depth and by all appearances the graduates of the Ph.D. programs are well educated in Biomedical Engineering. The Ph.D. program graduates will have breadth of knowledge in the areas of (1) Biomaterials and Tissue Engineering, (2) Molecular and Cell Bioengineering, (3) Biomechanics and Rehabilitation Engineering, (4) Bio- computational Modeling and Devices, and (5) Innovation and Translational Biomedical Engineering, and
(6) Wearable Biosensors.

A specific challenge noted by the Team with regards to the curriculum is that there needs to be a more formal structure for entering graduate students who do not have an engineering background. There needs to be a rigorous curriculum to ensure that these students understand engineering fundamentals. Likewise, for engineers without biology backgrounds, there needs to be a structured curriculum to enhance their biological knowledge. However, this is a challenge to nearly all biomedical engineering graduate programs as the nature of biomedical engineering attracts students from many disparate disciplines.

The team also would like to point out that while the BME Program has a particular and unique strength in biomechanics and human factors, a broadening of course offerings in areas such as biomechanics, bio- imaging, and biosensors would significantly enhance the curriculum and the Program. This point was also noted by the

students and faculty in the Department.
Course offerings in regulatory issues and quality engineering can be developed to benefit the multi- disciplinary approach among the Ph.D. graduate students and faculty. Advanced course offerings in core areas of research need to be developed such as robotics, biomaterials, and mechanobiology. There is a sense among the graduate students that the Ph.D. degree would prepare them for industry opportunities. These areas of engineering are definitely engineering specialties and key areas of employment for biomedical engineers. Both of these engineering sub-disciplines play an essential role in the biomedical arena and many MS and PhD level biomedical engineers fill industry roles in these areas. While there was some discussion tying regulatory and quality engineering to entrepreneurship, these sub-disciplines are much more than that in biomedical engineering. They play a magnified role in all aspects of product design and development and all biomedical engineers need to be aware of them. With Wichita State University's strength in materials science, aviation research with a focus on regulatory aspects, this would be a good opportunity to leverage these strengths for the Ph.D. program in Biomedical Engineering.
The Ph.D. program in Biomedical Engineering has the unique opportunity for partnering with the local medical institutions towards offering internships and other training opportunities. Leveraging NIAR and the public private partnerships in Engineering at Wichita presents a significant opportunity for the Biomedical Engineering Department and the University as a whole in terms of shared curricula and joint offerings.
The teaching load of the faculty is excessive for research-active faculty. For junior faculty (first 3 years of appointment) the course load is 1:1, 2:1 and then 2:2 typically split between one undergraduate course and 1/2 graduate course(s) per year. For more senior faculty the split is 2:2. It is important to enable research active faculty sufficient research time to mentor their PhD students and grow the research program.

RECOMMENDED ACTIONS: The department will need to define a formal curriculum structure for non-engineering incoming PhD students and for engineering students without sufficient human factors/biology knowledge. The research concentrations can be consolidated to streamline the curriculum. The teaching load of research active faculty needs to be adjusted to enable them time to devote to PhD student mentoring. Inception of regulatory and quality courses would leverage the interdisciplinary opportunities afforded by NIAR.

(3) Program Faculty

The faculty of the Biomedical Engineering department are a major strength of the proposed PhD program. The faculty are qualified to offer the proposed program. There are currently a total of 8 core faculty, including the Dean of Engineering. Not including the Dean of Engineering, there are 4 Associate Professors and 3 Assistant Professors (7 total, 6.5 FTE). One of the Associate Professors serves as the Graduate Coordinator. There are 7 total affiliated faculty from departments such as biological sciences, chemistry, human factors, and human performance.

Faculty expertise is highly multidisciplinary, including areas such as biomechanics, wearable sensors, cellular and molecular bioengineering, human/brain-machine interfaces, neural engineering, biomedical instrumentation, biomaterials, drug delivery, and robotics. These areas of faculty expertise synergize nicely with other departments at WSU as well as regional resources such as the Veterans Affairs (VA). Moreover, there is a strong aerospace research presence within the faculty, with at least one current NASA-funded project and another NASA project pending, with relevance to the NIAR mission. These excellent current and potential connections may be leveraged strategically with support and vision from upper administration including the Provost and Vice President for Research.

The primary concern is the ability to meet the requirement of 8 total Ph.D.-level faculty within 3 years of inception. Technically, including the Dean of Engineering, there are exactly 8 Biomedical Engineering faculty currently. However, there are significant potential concerns with the retention of the current faculty for three primary reasons: 1) lack of a PhD program, 2) teaching load, 3) service load. The current degree program proposal addresses point

#1, and lends a sense of urgency to the implementation of the PhD program. The solution to addressing points #2 and #3 is hiring additional faculty. With an already- productive faculty, freeing up the service and teaching load will create time to more aggressively pursue external research funding (and teach graduate courses), a key mission of the institution that in turns finances and supports the PhD program.

Among faculty hires, two specific considerations are advised. One is to hire at least one an assistant professor of practice ('engineering educator'), which is urgently needed to lift the teaching load. Aspirational peer BME departments may range from two to ten such faculty. The absence of a professor of practice is a glaring omission in the BME profession. The second consideration is the need for full professors in the department, currently there are zero. It is difficult to recruit senior faculty without a PhD program, so careful consideration of timeline is advised to raise the necessary startup and endowment funds in addition to implementing the PhD program. For a tenure-track assistant professor, a starting salary for 9 months is listed as $85,000 in the proposal, but is far too low, and must be 10-20% higher to be competitive in the current market.

RECOMMENDED ACTION: Hire new faculty as soon as possible. A phased hiring plan is advised, with two tenure-track assistant professors and an assistant professor of practice ('engineering educator'), i.e., 3 total positions, in the next hiring cycle. In addition, a phased hiring plan (with commensurate financial business plan) that includes at least one full professor is strongly advised.

Graduate Assistants

The accomplishments of the current Masters students have been impressive, including one National Science Foundation (NSF) Fellow. Unfortunately, that student is being lost to another university because a BME PhD program does not yet exist at WSU. A straw poll of WSU BME faculty reveals a total of approximately 6 to 10 current Masters students who would be exceptional candidates to retain in a PhD program, conveying a sense of urgency for program implementation.

There is a significant concern with the funding model for the PhD program, particularly for recruiting. Launching a new PhD program is analogous to starting a new company, with a significant investment needed up front to get things moving before a big payoff is attained. In this case, the investment is in teaching assistant (TA) funds and graduate recruiting fellowships, and the payoff is in research expenditures. Currently there is a catch-22 in that PhD students produce the data that lead to research grants being funded, which finance the PhD students and the cycle continues. Like a chicken-and-egg scenario, which comes first? The funds for the PhD students, or the data produced by the PhD students that enables securing of grant funds? The answer is an investment in TA funds that allows the department to recruit a strong class of PhD students.

There is an excellent opportunity for the Dean of the Graduate School, the Dean of Engineering, the Provost, and the Vice President for Research to work together as a team to invest in this program, with quantifiable metrics including PhD to Masters student ratio (directly tied to research productivity), research proposals funded, and research grants awarded, to evaluate the return on investment. According to the Assistant Dean of the Graduate School, the PhD:Masters ratio is not currently tracked, and perhaps should be to be in alignment with the Provost, VPR, and Dean of Engineering goals to increase research productivity.

A competitive stipend for PhD students is essential to compete with regional BME PhD programs. The current market rate in the region is $25,000, and likely to increase. Moreover, faculty must budget for tuition and fees in grant proposals (except as expressly forbidden by a funding agency). Students in the program should not be expected to pay for their own tuition or fees, at the risk of losing PhD student recruits to competitor BME PhD programs.

RECOMMENDED ACTION: Fund 5-6 TA positions per year (with tuition and fees covered) dedicated exclusively to the PhD program (at the stipend rate recommended below), and offer at least one recruiting fellowship supplement per year (~$5,000) to support the launch and sustainability of this program, in a joint investment from the Graduate School, VPR, Dean of Engineering, and Provost.

RECOMMENDED ACTION: Set a minimum BME PhD student stipend of $25,000/year contingent on satisfactory progress. Cover fees and tuition by remission, TA funding, research grants, or otherwise.

(4) Academic Support

The department currently includes one full time administrative assistant and one full time laboratory technician, and one part-time student advisor, which is on the low end compared to staff support for BME departments nationwide (most recent survey across BME departments nationwide shows an average of four administrative staff and one full-time technical staff member). There are no concerns with general resources, with the exception that one faculty member mentioned an excessive reliance on interlibrary loan to obtain journal articles, which can be remedied by increasing electronic journal subscriptions by WSU, a key investment in the new BME PhD program.

RECOMMENDED ACTION: Hire an additional staff person dedicated to Biomedical Engineering, in particular a Student Programs Coordinator to support both the undergraduate program (e.g., ABET accreditation) and the burgeoning graduate programs.

RECOMMENDED ACTION: Invest in an external consultant to review grant applications prior to them being submitted to a funding agency.

RECOMMENDED ACTION: Dean of University Libraries review electronic journal subscriptions and add new journals based on a prioritized list of journal subscriptions provided by Chair of BME.

(5) Facilities and Equipment

The proposal coupled with a walk-through of each laboratory in Biomedical Engineering showed well- equipped facilities for conducting research. The gait analysis lab, mechanobiology and biomaterials labs, two sensor/imaging labs and a robotics research area were impressive in terms of (i) utilization of current technology, (ii) obvious signs of student-engagement (through numerous wall-mounted research posters),
(iii) breadth and depth of resources and (iv) the fact that almost all the labs had been created within the past 2 years.

Overall, the provisions for facilities and equipment for the short-term initiation of a doctoral program in biomedical engineering are met. However, the provisions for long-term success of a doctoral BME program are diminished by some key limitations:

- Faculty offices and labs are in different buildings. The result of this is a disconnect between graduate students and their advisors.
- BME faculty are located in three different buildings. This hampers collaboration. Of particular concern is that two labs dealing with wearable sensors are in different buildings and the faculty seem to have little interactions with each other.
- Labs are used for both research and teaching. The issues with this included (i) costs of maintaining teaching equipment should be covered by central resources, whereas research equipment should be the responsibility of the faculty person overseeing the research lab, and (ii) in the future, sensitive tissue engineering or mechanobiology research projects could be jeopardized by contamination caused by undergraduates using a lab for their classes.

While there is sufficient equipment in each lab for establishing a new doctoral BME program, in the longer term, the research productivity would be enhanced by an infusion of up-front costs to cover items such as; reactive ion etcher, metal deposition chamber, high frequency oscilloscopes (6 to 10 GHz), high frequency generator and benchtop power supply, vector network analyzer, spectrum analyzer, micro fabrication capabilities for printed circuit board design. Note that almost all of these pieces of equipment could be shared with other departments at Wichita State University.

With regard to co-locating faculty there seem to be ample opportunities for achieving this close to labs occupied by BME faculty who conduct research in the areas of human movement, mechanobiology and sensors imaging (in the new Engineering Building). Some spaces in the new engineering building at close vicinity to the current BME labs seem underutilized. For instance, rooms 209, 323 and 335 appear to be unused and/or not used for research during the past 12 months.

RECOMMENDED ACTION: Co-locate BME faculty in contiguous space within the same building to promote collaboration, joint projects and student interactions.

RECOMMENDED ACTION: Use a one-time infusion of funds to purchase equipment that can be shared between departments.

(6) Program Review, Assessment and Accreditation

The proposal builds upon a successful MS program in biomedical engineering that was launched in 2016. This MS program currently has about 20 students in it, some of whom are interested in enrolling in a PhD at Wichita State. Across departments, internal reviews are conducted every 4 years, with the most recent review being completed in 2018. Every 8 years, Wichita State University sends program reviews to the Kansas Board of Reagents. In the case of a new doctoral BME program, the next review would be in 2022. If meaningful input is to be incorporated from doctoral students in the program at that time, the BME department will need to have a critical mass of students, most likely between 12 and 18 students spread between 8 faculty members. As mentioned in Section 2, this requires an initial cohort of about 6 students in Year 1.

It should be noted that the national Biomedical Engineering Society (BMES) does not currently have criteria for evaluating doctoral programs. Similarly, there are no Accreditation requirements for doctoral BME programs (unlike undergraduate programs that undergo ABET reviews every 6 years).
With the aforementioned observations, the proposed PhD program in Biomedical Engineering meets the standards expected for this provision.

In terms of measures of success, it is worthwhile highlighting what BME faculty consider as successful outcomes after an initial 2 year period:

- Participation in national and international BME conferences.
- Addition of one new faculty member (the committee believes that four new faculty are needed, as outlined in Section 3).
- Increase in applications to the doctoral BME program.
- Increase in grant applications (the committee believes that the key is in funding success rather than number of applications). [Hiring an external reviewer of proposals prior to submission should help achieve a higher rate of grant funding.]
- Collaborative research projects with clinicians and residents at Kansas University Medical School.

RECOMMENDED ACTION: Utilize established procedures being used by other engineering departments to evaluate the doctoral program. “Continuous improvement” should be the mantra when getting a new program established.

RECOMMENDED ACTION: Build a critical mass of doctoral students over the initial 2 year period so that meaningful feedback can be obtained from the most important stakeholders – the students themselves.

RECOMMENDED ACTION: Keep track of (i) number of proposal submissions from each faculty member, (ii) outcome of the application and (iii) number of joint applications (a marker of collaboration).

Wichita State University Response to KBOR Site Visit External Reviewers Recommended Actions

The Department of Biomedical Engineering thanks the PhD program review team for its thorough and positive review of the proposed PhD program in Biomedical Engineering. The review team found a compelling and urgent need for a program at Wichita State, and has offered recommendations for strengthening the program. Some recommended actions can be accomplished in the immediate future while others require long-term commitments and planning. In the response below, these actions are described.

Program Justification

- Recommended Action: Leverage current department strengths in Biomechanics, Biosensors, Biomaterials and Devices towards building a strong PhD program.
    - Response: The external review team has identified current department expertise strengths which would provide focus for future growth of the program. We agree that these areas represent a core of unique expertise that can be built upon to create a strong and vibrant program. As we plan for future faculty searches, the BME Department faculty will include these core areas as a starting point for discussions of departmental needs with respect to expertise areas that will complement and strengthen faculty research, aimed at building a strong PhD program.

- Recommended Action: Competitive stipends and resources must be offered comparable to KU and K-State.
    - Response: Based on the current allocation from various internal sources (e.g., College of Engineering, Graduate School), the BME Department has developed a plan for immediately supporting a minimum of four PhD Graduate Teaching Assistants with competitive stipends (comparable to KU and K-State). With the support of the Provost, the College of Engineering and Biomedical Engineering Department will develop a longer-term plan to support an additional 4-6 PhD students annually at competitive stipends.

- Recommended Action: Teaching load reduction for research active faculty must be considered for the sustainability of the PhD program and for ensuring retention of faculty.
    - Response: Currently, research-intensive faculty in the department teach two courses per semester. We are considering ways to reduce the teaching load for faculty who are highly engaged in research. The College of Engineering Executive Committee is currently developing a plan to address faculty workload that would adjust teaching load based in part on research productivity and grant activity. The focus will be on creating a workload structure that supports high-intensity research while also supporting the instructional needs of the undergraduate and graduate students through utilization of highly qualified teaching faculty (engineering educators).

Curriculum

- Recommended Action: Define a formal curriculum structure for non-engineering incoming PhD students and for engineering students without sufficient human factors/biology knowledge.
    - Response: The proposal as submitted indicates that "students entering the Biomedical PhD program are expected to have already completed the following courses or their equivalents: Biology I, Anatomy and Physiology, Chemistry (Chemistry I and Chemistry II), Physics I, Math (Calculus I, Calculus II, Differential Equations), Circuits, Thermodynamics, Statics, Statistics and programming. If prior coursework deficiencies exist, the student may be admitted on a conditional basis." While the number of and specific prerequisite courses required for conditional enrollment will vary based on an applicant's academic background, we will add to the above language that it will be expected that the prerequisite

coursework be completed within one academic year of enrollment in the BME PhD program.

- For incoming PhD students with non-engineering backgrounds, the above language would be sufficient, which identifies the necessary engineering coursework and prerequisite courses to the engineering coursework that are needed for admission. The above language of the prerequisite courses and the timeframe to complete will apply to this group of applicants.
- For incoming PhD students with an engineering background without sufficient human factors/biology knowledge, we will add a specific section in the admission requirements specifying Biology and Anatomy and Physiology related courses are needed. The above language of the prerequisite courses and the timeframe to complete will apply to this group of applicants as well, although it will likely take less time than the incoming PhD students with non-engineering backgrounds.

- Recommended Action: Research concentrations can be consolidated to streamline the curriculum.
  - Response: This is a great recommendation recognizing the research strengths of the current faculty. The program faculty will review the proposed coursework in the curriculum to identify avenues to fit within research concentrations. New or revised Concentrations need to proceed through the university curriculum process, so these changes will be implemented through the curriculum approval process during the 2019/20 academic year.

- Recommended Action: Teaching load of research active faculty needs to be adjusted to enable them time to devote to PhD student mentoring.
  - Response: As indicated above, the College of Engineering Executive Committee is investigating a plan to address faculty workload that would adjust teaching load based in part on research productivity and grant activity.

- Recommended Action: Inception of regulatory and quality courses would leverage the interdisciplinary opportunities afforded by NIAR.
  - Response: Increasing the number and scope of collaborations between NIAR and the College of Engineering (COE) is a major priority for both. In fact, Dean Livesay from the College of Engineering and NIAR Executive Director Dr. John Tomblin meet monthly to bring the two groups closer together. One tangible outcome of this is the creation of a new NIAR/COE Liaison position that will look for mutually beneficial opportunities for both entities. Further, the BME department faculty will explore opportunities to develop regulatory-related coursework, infuse regulatory-related material into upper-level graduate coursework, or include regulatory-related material in professional development and graduate seminars. With respect to quality courses, the Industrial, Systems, and Manufacturing Engineering Department offers a graduate level Quality Engineering course (IME 854), which we listed as potential coursework in the proposed curriculum, and we will encourage the PhD students to consider including this course in their PhD coursework.

Program Faculty

- Recommended Action: Hire new faculty as soon as possible. A phased hiring plan is advised, with two tenure-track assistant professors and an assistant professor of practice ('engineering educator'), i.e., 3 total positions in the next hiring cycle.
  - Response: The current proposal called for hiring an additional tenure-track faculty member as soon as the next hiring cycle, and in place by Fall 2020, but no later than 3 years. We will submit a hiring plan proposal to the Dean and Provost this fall to accelerate the hiring time frame and hire additional faculty to support the PhD program.

- Recommended Action: A phased hiring plan (with commensurate financial business plan) that includes at least one full professor is strongly advised.
    - Response: Additional senior faculty would strengthen the research capacity of the PhD program. We will include a request for senior hires (associate or full) in the hiring proposal plan we submit to the Dean and Provost. Also, several current Associate Professors in the BME Department will be eligible for promotion to Full Professor over the next five years.

Graduate Assistants

- Recommended Action: Fund 5-6 TA positions per year (with tuition and fees covered) dedicated exclusively to the PhD program (at the stipend rate recommended below), and offer at least one recruiting fellowship supplement per year (~$5,000) to support the launch and sustainability of this program, in a joint investment from the Graduate School, VPR, Dean of Engineering, and Provost.
    - Response: Based on the current allocation from various internal sources (e.g., College of Engineering, Graduate School), the BME Department has developed a plan for immediately supporting at least four PhD GTAs with competitive stipends. The College of Engineering and Biomedical Engineering Department will develop a long-term plan to support additional PhD students with competitive stipends. Additionally, we will develop and submit a proposal to the Provost and Vice President for Research to acquire funding to recruit 4-6 PhD students annually.

- Recommended Action: Set a minimum BME PhD student stipend of $25,000/year contingent on satisfactory progress. Cover fees and tuition by remission, TA funding, research grants, or otherwise.
    - Response: The BME Department faculty will create a standard for research proposals that will include student stipend funding and tuition from research grant submissions to achieve competitive stipend and funding levels.

Academic Support

- Recommended Action: Hire additional staff person dedicated to Biomedical Engineering, in particular a Student Programs Coordinator to support both the undergraduate program (e.g., ABET accreditation) and the burgeoning graduate programs.
    - Response: The College of Engineering will review current staff assignments to see if current staff can be reassigned to focus on PhD program needs, and additional staff resources will be provided as necessary to address this recommendation.

- Recommended Action: Invest in an external consultant to review grant applications prior to them being submitted to a funding agency.
    - Response: The College of Engineering Associate Dean for Graduate Programs is currently engaged in the process of exploring and contracting with professional grant writers experienced with federal grant funding.

- Recommended Action: Dean of University Libraries review electronic journal subscriptions and add new journals based on a prioritized list of journal subscriptions provided by Chair of BME.
    - Response: Although the current Interlibrary Loan process works very efficiently, the BME Department Chair will survey BME faculty to obtain a prioritized list of electronic journal subscriptions not currently available through University Libraries and communicate this with the Dean of the University Libraries.

Facilities and Equipment

- Recommended Action: Co-locate BME faculty in contiguous space within the same building to promote collaboration, joint projects and student interactions.

- Response: The new Dean of the College of Engineering is currently assessing space usage across the College, with a specific focus on research productivity and discipline cohesiveness. Reallocations of space will be done thoughtfully over time to ensure that the College's research priorities are maximally addressed.

- Recommended Action: Use a one-time infusion of funds to purchase equipment that can be shared between departments.
    - Response: The College of Engineering has an established program fee distribution model that is specifically designed for capital-intensive equipment purchases. Each department receives a portion of their program fees that should meet most equipment needs. When it does not, departments can request supplemental funding from the dean's office to assist with large purchases. Further, the College of Engineering will explore a plan for developing and submitting proposals for purchase of large equipment (e.g., NSF MRI). The College of Engineering Dean is committed to providing funding as well as finding funding opportunities to support equipment and laboratory needs.

Program Review, Assessment and Accreditation

- Recommended Action: Utilize established procedures being used by other engineering departments to evaluate the doctoral program. "Continuous improvement" should be the mantra when getting a new program established.
    - Response: The Biomedical Engineering Department's graduate committee will query the other WSU engineering departments regarding their established procedures for assessment of their PhD programs. Based on these established procedures and data sources, the BME Department will develop and institute a best practices approach for evaluation of the BME PhD program with an emphasis on continuous improvement.

- Recommended Action: Build a critical mass of doctoral students over the initial 2-year period so that meaningful feedback can be obtained from the most important stakeholders – the students themselves.
    - Response: The review team has recommended an initial cohort of six students to create a critical mass of students for assessing program quality. We have committed to providing support to 4 students in the first year and 4-6 students annually thereafter. We believe this will give us a sufficient number of students for quality assessment. In addition, a PhD graduate student survey will be developed with the objective of soliciting feedback on factors related to the student's perception of the quality of the doctoral program.

- Recommended Action: Keep track of (i) number of proposal submissions from each faculty member, (ii) outcome of the application and (iii) number of joint applications (a marker of collaboration).
    - Response: While these data are currently reported annually by faculty in their Faculty Activity Record as part of the annual review process, these data will be incorporated into the program evaluation process for the BME PhD program.

University of Kansas Medical Center

Doctorate in Clinical Nutrition

Program Approval

I. General Information

A. Institution University of Kansas Medical Center

B. Program Identification

Degree Level:	Doctorate
Program Title:	Clinical Nutrition
Degree to be Offered:	Doctorate in Clinical Nutrition (DCN)
Responsible Department:	Dietetics and Nutrition (DN)
Modality:	Online
CIP Code:	30.1901
Proposed Implementation Date:	Fall 2020

Total Number of Semester Credit Hours for the Degree: 48

II. Justification

A Doctorate in Clinical Nutrition (DCN) is an online, professional practice degree focused on producing:

- advanced-level practitioners in clinical nutrition;
- food and nutrition managers, administrators, and consultants;
- public health nutritionists; and
- transformational researchers in higher education.

Clinical dietitians work in clinical settings to provide patients with medical nutrition therapy to prevent chronic disease and to manage existing disease. Medical nutrition therapy involves individualized nutrition assessment, identification of nutrition problems that contribute to disease, evidence-based nutrition therapy to address identified nutrition problems, and nutrition counseling services for disease management (Academy of Nutrition & Dietetics).[1] Examples of patient conditions for which medical nutrition therapy has a strong evidence base include malnutrition, diabetes mellitus, chronic kidney disease, cardiovascular disease, cancer, and more Furthermore, there is a strong demand for advanced practice clinical nutritionists among physicians, administrators, and other health care professionals who work with, hire, and supervise dietitians.

Graduates of the KUMC Doctorate in Clinical Nutrition (DCN) program would be rigorously trained to provide leadership in prevention, intervention, and treatment of chronic diseases at the individual and population level. DCN graduates would complete cutting-edge coursework, a work-based practicum, and an outcomes-based research project. Similar programs at KUMC follow this structural framework, including Doctor of Nursing Practice, Doctor of Nurse Anesthesia, Doctor of Physical Therapy, Doctor of Occupational Therapy, Doctor of Audiology, Doctor of Speech-Language Pathology, and Doctorate in Clinical Laboratory Science.

Advanced-level clinical nutrition practitioners are in demand as the healthcare industry increasingly requires higher levels of education to enter the field.[2] In fact, the Commission on Dietetic Registration recently changed the requirement for entry-level dietitians from a baccalaureate degree to a master's degree, effective January 1, 2024.[3] Other health professions have already moved their requirements to a graduate level, including Physical Therapy, Audiology, and Occupational Therapy.

Lack of a DCN is a critical gap in the Dietetics and Nutrition program given the growing demand for advanced-level practitioners in clinical nutrition. Compelling reasons to be an early pioneer for the DCN are many, including:

- development of strong clinical and research skills that can be used to design and direct translational research in clinical settings;
- a gain in respect and credibility with other fields;
- increased critical thinking skills; and
- contributions to advances in the field of nutrition.

III. Program Demand:

A. Survey of Student Interest

Number of surveys administered: …… 33
Number of completed surveys returned: ……. 33
Percentage of students interested in program: … 45%

As formative work, the Department of Dietetics and Nutrition distributed a survey to a convenience sample of attendees at the Kansas Academy of Nutrition and Dietetics (KSAND) Annual Conference in Topeka on April 15, 2016. This is the state professional meeting for dietitians. Surveys were handed to 80 dietitians who visited the KUMC exhibit booth. Respondents either filled the survey while at the booth or returned it later that day. The results (n=54) indicated a strong interest in a DCN program and a preference for an online format. The information was used to formulate the proposed program.

In 2018, a revised survey was built in an online version. A unique Quick Response Code (QR code) was established and linked so that when an individual scanned the QR code with their smartphone, the survey autopopulated in their phone. If preferred, a paper copy of the survey was also available. On April 2, 2018, the online survey was given to students currently enrolled in the Dietetics and Nutrition Master's program (n=12) to gauge interest and test the online survey version. The convenience sample of students were graduating students enrolled in an advanced micronutrient class. Twenty-five percent of the students indicated that they would be interested in completing a DCN program. The top barriers noted were: "*I am not motivated for more school at this time"* and "*I would need to know the cost*".

Given that the population of interest for the proposed DCN program is working dietitians, on April 6, 2018, registered dietitians (n=33) who attended the KSAND Annual Conference in Overland Park, KS were surveyed. Attendees who visited the KUMC exhibit booth were invited to scan the QR code and take the survey on their phone or complete a paper survey at that time. Forty-five percent of the dietitians expressed interest in completing a DCN.

B. Market Research

In recent years, interest in the role of food and nutrition in promoting health and wellness has increased, particularly as a part of preventative healthcare in medical settings. The importance of diet in preventing and treating illnesses is well known. More dietitians will be needed to provide care for people with these conditions. Moreover, as the baby-boom generation grows older and looks for ways to stay healthy, there will be more demand for dietetic and nutrition services. [6]

As early as 1993 in a regional survey of dietitians, 99% reported that a practice doctorate was important for dietitians and 55% expressed interest in attaining such a degree.[7] In 1994, the American Dietetic Association identified development of practice-based doctoral programs as a priority.[8] In 2006, a national survey of dietitians revealed strong interest in professional doctorate programs.[9] A 2015 survey by the Accreditation Council for Education in Nutrition and Dietetics found that "credible advanced practice credentials remain important in raising the competency level of dietitians and to address the increasing rate of chronic and complex diseases".[10]

There are currently only two other Doctorate in Clinical Nutrition programs in the country (Rutgers University and University of North Florida). Both existing programs are online and there are no residential DCN programs. Offering a DCN at KUMC will fill both a national need as well as the state-level need in Kansas.

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

Year	Headcount Per Year		Sem Credit Hrs Per Year*	
	New Full-Time	New Part-Time	Cumulative Full-Time	Cumulative Part-Time
Implementation	5	7	120	84
Year 2	5	7	240	168
Year 3	10	14	360	252

*Credit hours based on 24/year for full time and 12/year for part-time.

V. Employment

According to the U.S. Department of Labor website, employment of dietitians is projected to grow 15 percent from 2016 to 2026, much faster than the average for all occupations.[4] The demand for doctoral level dietitians is estimated to far outpace the supply).[5] Graduates of other DCN programs have become:

- advanced-level practitioners in healthcare settings (acute care and outpatient settings);
- university faculty;
- research specialists; and
- senior management professionals in federal and state programs, industry, and non-profit organizations.

The Department of Veterans Affairs hired the most dietitians in 2017,[11] followed by Academic Medical Centers across the U.S. Dietitians with advanced degrees or certification in a specialty area enjoy better job prospects. For example, dietitians with doctoral degrees earn $14 more per hour than those with a bachelor's degree.[12] The median salary for a dietitian is $59,410, and those with clinical doctoral degrees average $77,410 with many exceeding $100,000 annually.[13]

VI. Admission and Curriculum

A. Admission Criteria

Admission criteria are listed below. Applicants must:

- Be a Registered Dietitian with current professional licensure (when required by their state).
- Have an earned Master's degree and currently employed as a dietitian (either full- or part-time).
- Complete the graduate application form, including letter of intent with professional goals.
- Achieved minimum graduate GPA requirements for admission to KUMC (3.0 on a 4.0 scale).
- Submit official transcripts from all colleges and/or universities attended with degrees conferred.
- Submit three letters of recommendation from supervisors, faculty, or advisors in the field.
- International students must reside in a country that has reciprocity with Commission on Dietetic Registration; Official TOEFL exam scores for international applicants must be sent directly to KUMC.

B. Curriculum

	Course Number & Title		SCH
Summer	DN XXX*	Interprofessional Collaboration	3
	DN 8**	Clinical Nutrition Core Elective	3
		Summer Subtotal	*6*
Fall	DN XXX	Nutrition Communication for Advanced Practice	3
	DN XXX	Leadership Essentials in Clinical Nutrition	2
	PRVM 853	Responsible Conduct of Research (Ethics)	1
	DN 8**	Clinical Nutrition Core Elective	3
		Fall Subtotal	*9*

Spring	NRSG 880	Org. Found Lead Change	3
	Biostats 714	Fundamentals of Biostatistics I	3
	DN XXX	Evidence Analysis in Clinical Nutrition	3
		Spring Subtotal	*9*
Summer	DN 810	Nutritional Assessment	3
	DN XXX	Research Protocol Development in Clinical Nutrition	1
	NURS 938	Informatics and Technology Applications	2
		Summer Subtotal	*6*
Fall	NRSG 919	Fdtns. for Leading & Communicating in Organizations	3
	BIOS 717	Fundamentals of Biostatistics II	3
	DN XXX	Advanced Clinical Nutrition Residency†	3
		Fall Subtotal	*9*
Spring	DN 8**	Clinical Nutrition Core Elective	3
	DN 990	Applied Research Project	6
		Spring Subtotal	*9*
		Total	48

DN = Dietetics and Nutrition; BIOS = Biostatistics; NURS = Nursing; PVRM = Preventive Medicine

***** Courses in development

** Students select from among the following electives:

- DN 829 Nutrition in Aging
- DN 838 Advanced Medical Nutrition Therapy
- DN 839 Clinical Aspects of Nutrition Support
- DN 842 U.S. Public Health Nutrition
- DN 857 Motivational Interviewing in Health Settings
- DN 862 Maternal and Child Nutrition
- DN 865 Nutrition in Sport and Exercise
- DN 870 Health Behavior Counseling
- DN 875 Pediatric Clinical Nutrition
- DN 876 Interventions for the Prevention of Obesity
- DN 880 Dietary and Herbal Supplements
- DN 881 Introduction to Dietetics and Integrative Medicine
- DN 882 A Nutrition Approach to Inflammation and Immune Regulation
- DN 884 Diet, Physical Activity and Cancer
- DN 885 Nutritional Biochemistry
- DN 895 Advanced Macronutrients and Integrated Metabolism
- DN 896 Advanced Micronutrients and Integrated Metabolism
- DN 890 Nutrigenomics and Nutrigenetics in Health and Disease

† Students will self-select the clinical sites for their Advanced Clinical Nutrition Residency based on their geographical location and career interests. Regardless of the location of the clinical site, KUMC will obtain clinical affiliation agreements with each selected site.

VII. Core Faculty

Faculty Name	Rank	Highest Degree	Tenure Track Y/N	Academic Area of Specialization
Debra K. Sullivan, Ph.D., R.D.	Professor	Ph.D.	Y	Life Cycle Nutrition/Leadership
Jeannine Goetz, Ph.D., R.D., L.D.	Assoc. Prof.	Ph.D.	Y	Weight Management
Heather Gibbs, Ph.D., R.D., L.D.	Asst. Prof.	Ph.D.	Y	Medical Nutrition Therapy
Aaron Carbuhn, Ph.D., R.D., L.D., CSSD	Asst. Prof.	Ph.D.	Y	Sports Nutrition
Susan Carlson, Ph.D.	Professor	Ph.D.	Y	Maternal/Child Nutrition

Holly Hull, Ph.D.	Assoc. Prof.	Ph.D.	Y	Maternal/Child Nutrition
Sharon Peterson, Ph.D., R.D., L.D.	Clinical Instructor	Ph.D.	N	Nutrition Education
Leigh Wagner, Ph.D., R.D., L.D.	Clinical Instructor	Ph.D.	N	Integrative Nutrition
New Faculty/Program Director*	Clin. Assoc. Prof.	Ph.D.	N	Medical Nutrition Therapy
New Faculty (year 2)	Clinical Instructor	Ph.D.	N	Nutrition Support
Additional Faculty				
Jill Hamilton-Reeves, Ph.D., R.D., L.D., CSSD. Department of Urology	Assoc. Prof.	Ph.D.	Y	Nutrition and Cancer
Candice Rose, M.D. M.S. R.D. Department of Internal Medicine	Asst. Prof.	M.D.	Y	Endocrinology
Lauren Ptomey, PhD., R.D., L.D. Department of Internal Medicine	Res. Asst. Prof.	Ph.D.	N	Nutrition and Intellectual and Developmental Disabilities

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

VIII. Expenditure and Funding Sources

A. EXPENDITURES	First FY	Second FY	Third FY
Personnel – Reassigned or Existing Positions			
Faculty	$ 44,780	$ 46,123	$ 47,045
Administrators *(other than instruction time)*			
Graduate Assistants			
Support Staff for Administration (*e.g., secretarial*)	$ 1,075	$ 1,107	$ 1,140
Fringe Benefits *(total for all groups)*	$ 16,049	$ 16,530	$ 16,865
Other Personnel Costs			
Total Existing Personnel Costs – Reassigned or Existing	$ 61,904	$ 63,760	$ 65,050
Personnel – New Positions			
Faculty	$ 102,250	$ 164,800	$ 169,744
Administrators *(other than instruction time)*			
Graduate Assistants			
Support Staff for Administration (*e.g., secretarial*)			
Fringe Benefits *(total for all groups)*	$ 29,050	$ 57,680	$ 59,410
Other Personnel Costs			
Total Existing Personnel Costs – New Positions	$ 131,300	$ 222,480	$ 229,154
Library/learning resources			
Equipment/Technology	$ 2,100		
Physical Facilities: Construction or Renovation			
Other	$ 2,200		
Total Start-up Costs	$ 4,300	$ 0	$ 0

Operating Costs – Recurring Expenses			
Supplies/Expenses	$ 11,335	$ 10,670	$ 17,150
Library/learning resources			
Equipment/Technology			
Travel			
Other			
Total Operating Costs	$ 11,335	$10,670	$ 17,150
GRAND TOTAL COSTS	$ 208,839	$ 296,910	$ 311,354

B. FUNDING SOURCES *(projected as appropriate)*	First FY (New)	Second FY (New)	Third FY (New)
Tuition / State Funds	$ 85,884	$ 171,768	$ 257,652
Student Fees	$ 20,400	$ 40,800	$ 61,200
Other Sources			
GRAND TOTAL FUNDING	$ 106,284	$ 212,568	$ 318,852
C. Projected Surplus/Deficit (+/-) (Grand Total Funding *minus* Grand Total Costs)	($ 102,555)	($ 84,342)	+ $ 7,498

IX. Expenditures and Funding Sources Explanations

A. Expenditures

Personnel – Reassigned or Existing Positions

This program leverages existing classes in Dietetics and Nutrition (DN) as well as those currently being taught by faculty in the School of Nursing and School of Medicine at KUMC. The current DN faculty will continue to teach their existing classes and the new Doctorate in Clinical Nursing (DCN) students will join existing students.

Faculty experts in the KUMC School of Medicine co-mentor students when their expertise is desired. They have agreed to continue their role in this new program. Dr. Hamilton-Reeves teaches DN 884: Diet, Physical Activity and Cancer and mentors DN students who wish to pursue cancer research. Dr. Ptomey is an expert in diet and physical activity interventions for individuals with intellectual and developmental disabilities (IDD). She has taught several DN courses and routinely mentors MS students who are interested in IDD. Dr. Rose is a board-certified endocrinologist and also a Registered Dietitian; she mentors students interested in endocrinology areas.

The calculations for the FTE for existing faculty are listed below.

- Dr. Sullivan as Department Chair will oversee the program; this was estimated at 10%.
- Dr. Goetz teaches existing classes that will likely be taken as electives. It was assumed that she will teach one class per year where the new DCN students will enroll A 3 semester credit hour course is calculated as 10%. The current existing student enrollment is 20 students, and, at most, 10 DCN students would take the class - - thus her curricular engagement is calculated at 5%.
- Drs. Gibbs, Carbuhn, Peterson and Wagner also teach existing classes that the new DCN students will join. It is anticipated they may teach 2 classes per year that DCN students will take and thus using the calculations above, they are estimated at 10% engagement.
- Drs. Carlson and Hull will participate in the orientation session for new students and also teach courses that are optional electives for this program and two other graduate programs (Nutrigenomics and Nutrigenetics in Health and Disease and Advanced Micronutrients and Integrated Metabolism). Using the calculations above, they are estimated at less than 10% engagement.

Personnel – New Positions

According to the KBOR manual, KUMC should hire two new faculty to support the new graduate program. The institution is committed to supporting the DCN and has committed to support two new faculty positions. KUMC plans to hire:

- one new Ph.D. level faculty as a Clinical Associate Professor ($83,000) in the fourth quarter of 2019 (so that this hire can begin developing the program).
- one new Ph.D. level Clinical Assistant Professor ($77,000) in 2020.

These individuals will be doctorly prepared, Registered Dietitians who also have clinical experience. They will be fully committed to the DCN program and will develop and teach new classes. They will oversee the clinical residencies and outcomes research projects.

Start-up Costs – One-Time Expenses

Year 1: Purchase a new computer and office furniture for new faculty.

Operating Costs – Recurring Expenses

The DCN is modeled after the successful KUMC School of Nursing Doctorate of Nursing Practice. The students will attend an orientation program where they undergo experiential training in required skills and then return for a follow up visit to evaluate the skills after being in the program. The costs estimates are listed in the table below.

Expenses	Year 1	Year 2	Year 3
Orientation visit (meals & materials estimated at $100/student)*	$ 1,200	$ 1,220	$ 2,400
Nutrition focused physical exam training ($65/student)*	$ 780	$ 780	$ 1,560
Body composition training ($50/student)*	$ 600	$ 600	$ 1,200
Simulation space use, standardized patients, and staff ($200/student)*	$ 2,400	$ 2,400	$ 4,800
Nutrition Data System for Research ($5,925 initial license + $3,850 annual renewal in years 2 and 3).	$ 5,925	$ 3,850	$ 3,850
Online Diet Manuals (adult, pediatric and sports @ $175, $175, and $80 for initial license and then $135, $135, and $70 for annual renewals.	$ 430	$ 340	$ 340
Publication costs to defer student cost of publishing their research**		$ 1,500	$ 3,000
Total	$ 11,335	$ 10,670	$ 17,150

*Students receive these trainings in their first year and there are 12 new students in Years 1 and 2 and 24 new students in Year 3.

** In the Evidence Analysis in Clinical Nutrition class, students will be expected to conduct an evidence analysis review and publish the results. The cost is estimated at $1,500 per publication with one publication in year 2 and two in year 3.

B. Revenue: Funding Sources

Revenue will come from tuition and student fees as listed in Table VIII Section B. A fee of $100/semester credit hour is included to

- provide unique experiential learning opportunities for students (simulation, nutrition focused physical exam, and advanced body composition);
- access to specialized software; and
- defray the publication costs for manuscripts that result from their evidence analysis class.

	Year 1	Year 2	Year 3
Tuition ($421/credit hr)			
Full time	$ 50,520	$ 101,040	$ 151,560
Part-time	$ 35,364	$ 70,728	$ 106,092
Total	$ 85,884	$ 171,768	$ 257,652
Student fees ($100/hr)			
Full time	$ 12,000	$ 24,000	$ 36,000
Part-time	$ 8,400	$ 16,800	$ 25,200
Total	$ 20,400	$ 40,800	$ 61,200
Total Revenue	$ 106,284	$ 212,568	$ 318,852

Full time students take 24 credit hours/year and part time students take 12 credit hours/year.
Year 1 has 5 full time and 7 part-time students.
Year 2 has 10 full time (5 new; 5 returning) and 14 part-time students (7 new; 7 returning).
Year 3 has 15 full time (10 new; 5 returning) and 21 part-time students (14 new; 7 returning).

C. Projected Surplus/Deficit

The program will be in the deficit in Years 1 and 2, but then has a surplus in Year 3 and thereafter.

X. References

1. Academy of Nutrition and Dietetics (2018). *Registered Dietitians and Medical Nutrition Therapy Services.* Retrieved from https://www.eatright.org/food/resources/learn-more-about-rdns/rdns-and-medical-nutrition-therapy-services
2. Riddle, J. (2015, October). Today's Dietitian. Editor's spot: Advanced-level practice dietitians. (v.17, no.10). Retrieved from: https://www.todaysdietitian.com/newarchives/1015p4.shtml
3. Academy of Nutrition and Dietetics: Commission on Dietetic Registration. (2019). *Entry-level registration eligibility requirements update*. Retrieved from https://www.cdrnet.org/Entry-Level
4. U.S. Department of Labor. (2019). *Occupational Outlook Handbook.* Retrieved from: https://www.bls.gov/ooh/healthcare/dietitians-and-nutritionists.htm
5. Hooker, R., et. al. (2012). Journal of Academy Nutrition Dietetics. *Dietetics supply and demand: 2010-2020.* (v.112, no.3, pp.75-91).
6. Yeager, D. (2011, April). Today's Dietitian. *As America ages: Boomers need nutrition education now more than ever*. (v.13, no.4). Retrieved from: https://www.todaysdietitian
7. Christie B. & Kight M. (1993). Journal of American Dietetic Association. *Educational empowerment of the clinical dietitian: a proposed practice doctorate curriculum.* (v.93, no.2, pp.173-176).
8. Touger-Decker R. (2005). Topics in Clinical Nutrition. *Advanced practice doctorate in clinical nutrition: A new graduate degree option for registered dietitians*. (v.20, no.1, pp.48-53).
9. Jarratt, J. & Mahaffie, J. (2007). Journal of American Dietetic Association. *The profession of dietetics at a critical juncture: a report on the 2006 environmental scan for the American Dietetic Association.* (v.107, no.7, pp.29-57).
10. Accreditation Council for Education in Nutrition and Dietetics. (2017, November). *Rationale for future preparation of nutrition and dietetics practitioners: Environmental scan.* Retrieved from: http://www.eatrightpro.org/~/media/eatrightpro%20files/acend/futureeducationmodel/finalrationale.ashx
11. FederalPay.org. (2019). Common Federal Occupations. *Pay Rates for Dietitian and Nutritionist.* Retrieved from: https://www.federalpay.org/employees/occupations/dietitian-and-nutritionist
12. Rogers, D. (2018). Journal of Academy Nutrition Dietetics. *Compensation and Benefits Survey 2017.* (v.118, no.3, pp.499-511).
13. Compensation Research. (2019). Retrieved from: https://www.payscale.com

Report to the Kansas Board of Regents

regarding the Proposed Program for

a new Doctorate in Clinical Nutrition (DCN),

Department of Dietetics and Nutrition, School of Health Professions,

University of Kansas Medical Center (KUMC)

August 28, 2019

Review Team Members:

Rebecca Brody, Associate Professor, Department of Clinical and Preventative Nutrition Sciences, Rutgers, The State University of New Jersey

Norman Hord, Head and Celia Strickland Austin and G. Kenneth Austin III Professor in Public Health and Human Sciences, School of Biological and Population Health Sciences, Oregon State University (Review Team Chair)

Kelly Tappenden, Professor and Head of the Department of Kinesiology and Nutrition, University of Illinois at Chicago, Illinois

Riva Touger-Decker, Professor and Chair, Department of Clinical and Preventative Nutrition Sciences, The State University of New Jersey

Preamble:

The review team appointed by the Kansas Board of Regents (KBR) completed a site visit from July 31-August 1, 2019 and submits this written evaluation of the program proposal for a new Doctorate in Clinical Nutrition (DCN) in the Department of Dietetics and Nutrition at the University of Kansas Medical Center (KUMC). During our site visit, we made minor recommendations to KUMC leaders, Vice Chancellor Kline, Dean Akinwuntan and Department Chair Sullivan. Based on our site visit, our review of the program proposal, and responses from KUMC to our minor recommendations, we offer the following recommendation and report per KBR policy.

> The review committee appointed by the Kansas Board of Regents has judged that each of the six (6) standards described in the Board Policies on New Degree Programs has been met for the proposal for the Doctorate in Clinical Nutrition. The strong support of the DCN proposal by our review team is accompanied by specific commentary providing evidence that each standard has been adequately addressed.

We would like to thank the staff, faculty and administration at KUMC for their time, input and generous assistance during the review process. We were deeply impressed with the commitment to this proposed program and with the broad academic, technological and intellectual resources available to accomplish this proposed innovative program. It is worthy of comment that the review team noted consistent evidence of collaborative support among partners in other academic units, medical center departments, and other Kansas City-based health care institutions. This culture of collaboration and support at KUMC and the Kansas City metropolitan area portends well for the success of existing and proposed programs at this institution.

It is necessary to distinguish the training, clinical experience and research opportunities available to the DCN graduate relative to a research-focused Doctor of Philosophy (PhD) degree. Rapid shifts in the health care environment have driven advancement of education requirements for entry-level practice. Thus, as with practitioners with clinical practice doctorates in pharmacy, physical therapy and occupational therapy, the DCN fulfills this role in the nutrition and dietetics field.

Please note that two members of this review team serve as faculty in the pioneering Doctorate of Clinical Nutrition program in the U.S. at Rutgers, The State University of New Jersey. During the invited review of this proposal, the chair of the Department of Dietetics and Nutrition at KUMC has been responsive to commentary and critique which have led to refinement of the proposal curricula. There is no stronger support that can be voiced for this new proposed DCN program than to have one's potential competitor provide valuable collaborative assistance in program review and planning.

Section 1: Program justification

The review committee reports that the proposed DCN program is strongly justified and provide supportive commentary in six points below.

1. The proposed program supports the Board-approved mission statement of the institution; programmatic goals have 3 foci including advanced practice skills, research and scholarly communication, and professional leadership. The establishment and growth of DCN-prepared clinical practitioners contrasts the expertise of PhD-prepared faculty who are involved in clinically-focused research. In the same vein, the career trajectories of DCN-prepared practitioners are demonstrably broader than PhDs given the "academia or industry" dichotomy often presented to such graduates. It is noteworthy that DCN graduates are employed in a broad range of environments including advanced clinical settings, clinical research, pharmaceutical research, food industry research and academic tenure-track and clinical faculty positions. The necessity for demonstrating competence in advanced practice clinical skills clearly distinguishes the DCN program from a typical academic PhD program.

2. With elevation to a required graduate degree for entry-level practice in the nutrition and dietetics profession in 2024, there will be an anticipated increased need for doctorally-prepared clinical educators to teach in master's programs. RDs who want to distinguish themselves beyond those with a master's degree may enter a DCN program for advancement. The Academy of Nutrition and Dietetics supports development of advanced practitioners to strengthen opportunities for RDs in practice, research and clinical education. Adequate growth in student numbers are expected and are clearly described in the proposal.

3. We agree with the Vice Chancellor for Academic Affairs and Graduate Dean who stated the need for developing Registered Dietitians (RD) at the advanced practice level. Their clinical observations indicate that the impact of RDs will grow with advanced practice training as has occurred with other allied health professions. They propose that if RDs want a "seat at the clinical table, having those with advanced expertise, recognized by the DCN, is critical for the profession."

4. Two similar DCN programs exist in the U.S.; if approved, this would be the third DCN program in the US. The Regents system does not have a similar program nor is there a DCN program in this region of the US. The online platform will extend the reach of the program beyond the Midwest; however, local interest has been demonstrated through surveys and interviews. The program can draw from graduates of the masters degree programs at KUMC.

5. A growing evidence base from DCN graduates surveyed nationally by Rutgers University report that 35% of DCN graduates have enhanced income, 44% report increase in depth and breadth of their current position and 43% report career advancement or promotion.
6. Interviews with current masters-prepared RDs- clinicians and clinical managers in the Kansas City area- report strong desire to participate in the proposed DCN program. This strong evidence of considerable "pent up" demand was striking to the review team. The stated desire of these RDs to pursue the proposed DCN stemmed from interests ranging from enhanced knowledge base to opportunities of promotion and enhanced ability to participate in and lead multidisciplinary health care teams.

Section 2: Curriculum of proposed program

The review committee reports that the DCN program proposal has articulated a strong curriculum and provide supportive commentary in ten points below.

1. It is noteworthy that the KUMC DCN program proposal is modeled after the pioneering DCN program at Rutgers University. The rigor of the proposed program is consistent with advanced practice needs of RDNS in education, skills development (residency), leadership and research and scholarship.

2. The proposed curriculum is mapped to the current advanced practice competencies established through a practice audit conducted by the Commission on Dietetic Registration for development of the advanced practice in clinical nutrition credential. The coursework is comprised of 3 core sections: Communication, Collaboration, and Leadership, Research, and Clinical Nutrition. Students may select electives to support their area of clinical focus. The program offers a diverse selection of evidence-based courses that are expected to prepare graduates for advanced practice. The clinical practice residency, a 360- hour experience, will hone graduates' advanced practice skills. The proposed curriculum provides statistics and research courses to support development of a practice-based research project. Scientific inquiry, oral and written communication and critical thinking are threaded through the curricula.

3. We applaud the interdisciplinary training provided by the interprofessional education (IPE) programming across KUMC. The program goals related to IPE and professional leadership are significant differentiators from the PhD program and an essential element of the proposed program that will enable the graduates to provide professional leadership in collaborative health care settings.

4. The recommendation to include anticipated costs beyond tuition and fees associated with KUMC DCN program, as well as the established curricula for the program via web-based and print materials has been accomplished.

5. The recommendation to clarify the availability of both asynchronous and synchronous live sessions within courses for students to interact with faculty and demonstrate achievement of advanced practice knowledge beyond what is possible with the asynchronous approach has been met.

6. The recommendation that inclusion of interprofessional education (IPE) curricula in the DCN program curricula be "transcript visible" on student academic transcripts for each course or competency completed has been met.

7. The recommendation that the program proposal make clear that the program curricula will meet the knowledge, skills and abilities set forth in the *Advanced Practice Certification in Clinical Nutrition* by the Commission on Dietetic Registration of the Academy of Nutrition and Dietetics has been met.

8. The recommendation that the proposal clearly articulate the process for establishing approved residency sites and for approval of qualified advanced practice mentors for the residency component of the DCN has been met.

9. The recommendation that advanced practice clinical skills, particularly as part of their skills assessment for the assessment course and advanced MNT class, be taught using the KUMC Zamierowski Institute for Experiential Learning, the Neis Clinical Skills Lab and Simulation Center has been met. These skills may be accessible asynchronously, via KUMC Blackboard technologies, or synchronously, as appropriate to the course.

10. The recommendation that mentoring for research projects for DCN students include clear communication of mentoring committee composition and expectations for scholarship (including manuscript development and publication) consistent with doctoral-level programs has been met.

Section 3: Program faculty

The review committee reports that the DCN program proposal provides strong evidence that the faculty are highly qualified and appropriate to provide the current and, pending the new approved hires, for the proposed DCN program and provide supportive commentary in five points below.

1. The successful conduct of master's and doctoral programs in nutrition and medical nutrition science, respectively, demonstrate that the faculty and academic resources have been adequate for current degree programming.

2. The core faculty and adjuncts provide the expertise necessary to build a strong program. The requested and approved new faculty positions are a key strength of the proposed program. It would be supportive for the program director of the proposed DCN program if additional administrative support be provided by one or more graduate assistants.

3. The eight tenured, tenure-track and clinical faculty serving in the Department of Dietetics and Nutrition are excellent scholars and nutrition/dietetics practitioners. The additional three faculty affiliated with this program provide essential collaborative expertise in research and teaching to the program.

4. The recommendation to secure the firm commitment of KUMC administrative leadership to hire, at minimum, 2 faculty to implement the DCN program, has been met through communications from senior KUMC leadership, including Dean Abiodun Akinwuntan.
5. The recommendation to clarify teaching loads across program faculty within the department has been met with the 3-year teaching matrix supplied in response to reviewer recommendations.

Section 4: Academic support

The review committee reports that the DCN program proposal provides strong evidence that the academic support at the department, school and college level are appropriate to support the proposed DCN program and provide supportive commentary in three points below.

1. Comprehensive technical support for distance delivery technologies, as evidenced by current academic programs provided using these modalities, is strong evidence of potential program success.

2. It is clear that strong Institutional Review Board support exists and will be necessary to support DCN student research proposals and projects.

3. It is clear that strong central IT support is available at KUMC and that this infrastructure for online programs extends beyond curricula to all relevant student support services at KUMC (e.g., KUMC Computer Testing Center, Teaching and Learning Technologies, Academic Accommodations, and Counseling and Educational Support. Support services include Leadership, Human Resources, Student Servicesand Technology, etc.).

Section 5: Facilities and equipment

The review committee reports that the proposed DCN program proposal has met the need to describe available facilities and equipment for program needs and provide supportive commentary in three points below.

1. State-of-the-art clinical and technical facilities are available to support training the DCN program, including synchronous and asynchronous learning experiences.

2. The recommendations to more clearly describe adequate office space and resources for new faculty to perform their duties in teaching, research and administration have been met.

3. An excellent description of the superb career development resources for faculty at KUMC have been provided.

Section 6: Program review, assessment and accreditation

The review committee reports that the DCN program proposal has adequately outlined the elements of program assessment, review and accreditation; supportive commentary is provided in four points below.

1. The proposal describes elements of administration- and faculty-led DCN program evaluation including student application rates, retention rates and graduation rates, student course evaluation responses, student publications rates and national/regional presentation rates, program assessment surveys of graduates and employers immediately after graduation.

2. The recommendation to include screening interviews in the admission process with standard questions to evaluate knowledge of evidence-based practice, research experience/interest areas, and ideas for the clinical practice residency has been met.

3. The recommendation to establish and monitor additional student learning outcomes annually during the program has been met.

4. The recommendation to establish an advisory board for the DCN program was acknowledged and, contingent upon program approval and staffing, will be enacted.

Date: August 19, 2019

To: Dr. Blake Flanders, President
Kansas Board of Regents

From: Charles S. Taber, Provost and Executive Vice President

Re: Proposed name change to Department of Geography

Kansas State University is requesting to change the name of the Department of Geography to the Department of Geography and Geospatial Sciences. This name change was initiated through discussions with alumni and faculty, as it more accurately reflects the core areas of the department's course work, graduate education, and faculty research interests. While geography has remained a focus of the department, more emphasis has been placed on the areas of geographic information systems, remote sensing and spatial modeling. These core areas have expanded due to trends in the industry as well as job opportunities and placement for students.

I am supportive of this change. I believe that the department is looking forward as it considers cutting edge research and content that expands geography into the broader area of geospatial sciences. It is also seeking to better market the options available to students who have an interest geospatial sciences.

The change will not alter the faculty mix in the department, nor will it increase their costs. As noted, the department has already been teaching and performing high quality research in the geospatial sciences. The new name will more accurately reflect these areas of opportunity.

I have approved this change and would like it placed on the September agenda for the Council of Chief Academic Officers.

Please let me know if you have any questions, or if you require more information to move this forward.

Thank you.

Michael Tilford Conference on Diversity and Multiculturalism

Kansas Memorial Union - University of Kansas - Lawrence Campus

Thursday, October 3

12:00 – 4:00 pm	Registration
1:00 – 6:30 pm	Conference Sessions
7:00 pm (optional)	Speaker – Kiese Laymon Lied Center

Friday, October 4, 2019

8:00 – 10:30 am	Registration
9:00 – 10:40 am	Keynote Speaker – Jerry Kang
10:40 – 4:30 pm	Breakout Sessions

GOALS OF THE CONFERENCE

- Listening to visionary leaders who will inspire you to promote equity and awareness at your institution.
- Participating in workshops to learn about challenges teaching diverse populations on Kansas campuses.
- Sharing your passion for teaching and interacting with students regardless of race, gender, religion and national origin.

ABOUT THE MICHAEL TILFORD CONFERENCE ON DIVERSITY AND MULTICULTURALISM

The Michael Tilford Conference provides an opportunity for faculty, staff, and administrators at the Kansas Board of Regents' institutions to approach diversity in higher education by examining the challenges and opportunities in Kansas including:

- Inspire awareness of multiple dimensions of diversity, related practices of inclusion, and the transformation of higher education in Kansas.
- Inspire awareness of multiple dimensions of diversity, related practices of inclusion, and the transformation of higher education in Kansas.
- Participate in workshops to learn about challenges and strategies for teaching diverse populations on Kansas campuses.
- Share your passion for teaching and interacting with students from all backgrounds.

Please encourage your campus community to attend!

Registration is available at: http://diversity.ku.edu/tilfordconference.