Attachment 2
Supplemental Information - Curriculum Change proposals
Faculty Senate Review- Dec. 10, 2019 Meeting
https://kstate.curriculog.com/agenda:890/form

Business Administration

Data Analytics (M.S.) (https://kstate.curriculog.com/proposal:3909/form)

Rationale: What is changing?
Change is being made to drop a required class and add one in its place. Also 2 new courses are being added as electives in the Data Science track and 7 new courses are being added as electives in the Applied Analytics Track.

Rationale: Why is it changing?
The changes to the curriculum are being made to provide additional choices for the student completing the masters of data analytics

Impact: In the required course CIS 798 Topics in Computer Science is being replaced with CIS 731 Programming Techniques for Data Science and Analytics Credits: (3). Two new courses are being added as electives to the Data Science Track: IMSE 680 Quantitative Problem Solving Techniques Credits: (3) and STAT 766 Applied Data Mining/Machine Learning and Predictive Analytics Credits: (3). Seven new courses are being added as electives to the Applied Analytics Track: ACCTG 844 Design of Accounting and Business Information Processes Credits: (3), GENBA 890 Business Capstone Credits: (3), IMSE 680 Quantitative Problem Solving Techniques Credits: (3), MANGT 663 Supply Chain Analytics Credits: (3), STAT 730 Multivariate Statistical Methods Credits: (3), and STAT 766 Applied Data Mining/Machine Learning and Predictive Analytics Credits: (3). Units outside the College of Business that will impacted by these changes are: Department of Computer Science, Department of Industrial & Manufacturing Systems Engineering, and Department of Statistics. Below are letters of support. Letter of Support: CIS 531 & 731 From: Rodney Howell Sent: Tuesday, April 16, 2019 3:50 PM To: Chwen Sheu Cc: Roger McHaney; Bongsug Chae; Scott DeLoach; William Hsu Subject: Re: Analytics course vote today? Chwen, It's fine with us if CIS 531 is added to the data analytics certificate. It will be offered online. Rod On 4/16/2019 10:31 AM, Chwen Sheu wrote: Rodney, Thanks for the update. Our college would support your suggestion. CIS 731 is currently the required course for the MS-DA program. I expect the demand for that course increases in the next few years. Also, can I add the proposed CIS 531 to our undergrad data analytics certificate? Is it also offered online? Chwen ********** Chwen Sheu, Ph.D. Paul Edgerley Chair in Bus Ad Associate Dean College of Business Administration Kansas State University Manhattan, KS 66506 (785) 532-4363 http://www.chwensheu.com Letter of Support: IMSE 680 From: Bradley Kramer <bradleyk@ksu.edu> Sent: Friday, August 9, 2019 2:35 PM To: Chwen Sheu <csheu@ksu.edu> Cc: Todd Easton <teaston@ksu.edu>; Shing Chang <changs@ksu.edu>; Bongsug Chae <bchae@ksu.edu>; Roger McHaney <mchaney@ksu.edu>; Lynn Waugh <lwaugh@ksu.edu>; Ronald Jackson <rdj7@ksu.edu> Subject: RE: IMSE course

for MSDA Fine with IMSE. Regards, Brad Bradley A. Kramer, Ph.D. Professor and Head, Industrial & Manufacturing Systems Engineering Ike and Letty Evans Engineering Chair Director, Technology Development Institute From: Chwen Sheu <csheu@ksu.edu> Sent: Wednesday, August 07, 2019 2:44 PM To: Bradley Kramer <bradleyk@ksu.edu> Cc: Todd Easton <teaston@ksu.edu>; Shing Chang <changs@ksu.edu>; Bongsug Chae <bchae@ksu.edu>; Roger McHaney <mchaney@ksu.edu>; Lynn Waugh <lwaugh@ksu.edu>; Ronald Jackson <rdj7@ksu.edu> Subject: IMSE course for MSDA Hi Brad, Greetings! I trust your summer is going well. I would like to thank you again for supporting the MS-DA program. The on-campus program was launched last spring, and the online program kicks off this fall. We expect to see a total of 30 students this fall. I am pleased to see the success of the program, which would make all the participating programs happy. I do want to continue to review and improve the curriculum. With that in mind, I am writing to ask for your approval to add IMSE 680 Quantitative Problem Solving to the program. Dr. Easton and our graduate curriculum committee all believe this is a good addition to the program. Please let me know. Thanks. Best, Chwen ********** Chwen Sheu, Ph.D. Paul Edgerley Chair in Bus Ad Associate Dean College of Business Administration Kansas State University Manhattan, KS 66506 (785) 532-4363 http://www.chwensheu.com Letter of Support: STAT 730 & 766 From: Christopher Vahl Sent: Tuesday, April 2, 2019 11:16 AM To: Chwen Sheu Subject: RE: FYI Fw: 2019 Spring GSAC Meeting (May 3rd, Friday) & Program enrollment & A Big Thank You Hi Chwen, Sorry, I'm a bit behind on my email. STAT 730 and STAT 766 should be OK for your MS program. STAT 870 may not be a good fit because the prerequisite is STAT 720 Design of Experiments and the emphasis is more on the analysis of designed experiments rather than model fitting. There is currently no online version of STAT 766 or STAT 717. There has been some talk about trying to get STAT 717 online in the future, but we currently don't have the personnel to design and teach the course. Chris ---------- Christopher I. Vahl, PhD Associate Professor & Head of Statistics Department of Statistics Dickens Hall Room 101 C Kansas State University 785-532-0520 ---------- From: Chwen Sheu Sent: Wednesday, March 27, 2019 3:47 PM To: Christopher Vahl Subject: FYI Fw: 2019 Spring GSAC Meeting (May 3rd, Friday) & Program enrollment & A Big Thank You Hi Chris, Greetings! I hope you are enjoying the life of being a dept head. (1) Attached is a copy of the summary of my advisory council meeting from last fall. This should give your some idea of what an advisory board could do for you. We will have the spring meeting on May 3rd. You are welcome to come to part of the meeting to observe how this council functions. (2) I hope you have had a chance to review the possibility of offering the following courses as electives for the MS data analytics. STAT 730, campus (currently an elective for online Grad certificate and campus/Data Science track) STAT 766, campus (is it available online?) STAT 870, campus & online STAT 717 is currently an elective for the MS program. If the online version becomes available, it would also be a good addition. I am guessing, for the next three years, we may see ~3 students/year taking those courses. Let me know. Thanks. Chwen

Data Analytics (M.S.)

This Master of Science – Data Analytics (MS-DA) program is a graduate program, in collaboration with the Departments of Computer Science, Economics, Mathematics, Industrial Management and Systems Engineering, Statistics, and Geography, focusing on using advanced technologies to manipulate big data, utilizing rigorous methods to interpret the data, and obtaining the business skills necessary to translate

understanding into actionable organizational strategies. Specifically, upon completion of the Master of Science – Data Analytics program, students will possess the following knowledge and skills:

Knowledge

- demonstrate knowledge of big data management, predictive modeling using machine learning/statistical methods, and model validation and evaluation
- demonstrate knowledge of analytics project requirements, data acquisition and visualization, and business communication/presentation

Skills

- demonstrate the ability to convert client's business (or problem domain) into analytics project requirements
- demonstrate the ability to collect data from social media and corporate databases, to assess data quality assessment, and provide analysis in terms of exploratory data analysis and data visualization
- demonstrate the ability to clean and transform raw data sets for further data analytics processes
- demonstrate the ability to use various machine learning algorithms (e.g., hierarchical clustering, association) & statistical modeling techniques (e.g., regression, classification) to the data, including feature engineering and parameter optimization
- demonstrate the ability to use proper model validation (e.g., cross validation) and evaluation methods and performance metrics (e.g., prediction accuracy)
- demonstrate the ability to interpret model outputs, develop managerial and technical implications, and express oneself clearly, accurately, and professionally in both oral and written form

Students will be required to complete 30 hours of coursework: 21 hours of required and 9 hours of electives (Data Science track or Applied Analytics track).

Change From:	Change To:
Required courses (21 credit hours)	**Required courses (21 credit hours)**
ECON 630 Introduction to Econometrics **Credits:** 3	CIS 731 Programming Techniques for Data Science and Analytics **Credits:** 3
~~CIS 798 Topics in Computer Science **Credits**: 1-18~~	ECON 630 Introduction to Econometrics **Credits**: 3
IMSE 785 Big Data Analytics **Credits:** 3	IMSE 785 Big Data Analytics **Credits:** 3
MANGT 830 Information Technology Strategy and Application **Credits:** 3	MANGT 830 Information Technology Strategy and Application **Credits**: 3
MIS 665 Business Analytics and Data Mining **Credits:** 3	MIS 665 Business Analytics and Data Mining **Credits:** 3
MIS 670 Social Media Analytics and Web Mining **Credits:** 3	MIS 670 Social Media Analytics and Web Mining **Credits:** 3
MKTG 880 Applied Marketing Analytics **Credits:** 3	MKTG 880 Applied Marketing Analytics **Credits:** 3
Track Electives (9 credit hours) *Choose three (3) from one of the two following tracks:*	**Track Electives (9 credit hours)** *Choose three (3) from one of the two following tracks:*
Track #1 Data Science Track	***Track #1 Data Science Track***
CIS 833 Information Retrieval and Text Mining **Credits**: 3	CIS 730 Principles of Artificial Intelligence **Credits:** 3

CIS 751 Computer and Information Security **Credits:** 3	CIS 732 Machine Learning and Pattern Recognition **Credits:** 3
CIS 730 Principles of Artificial Intelligence **Credits:** 3	CIS 751 Computer and Information Security **Credits**: 3
CIS 732 Machine Learning and Pattern Recognition **Credits:** 3	CIS 833 Information Retrieval and Text Mining **Credits**: 3
	IMSE 680 Quantitative Problem Solving Techniques **Credits:** 3
MATH 725 The Mathematics of Data and Networks I **Credits:** 3	MATH 725 The Mathematics of Data and Networks I **Credits:** 3
MATH 726 The Mathematics of Data and Networks II **Credits:** 3	MATH 726 The Mathematics of Data and Networks II **Credits:** 3
STAT 717 Categorical Data Analysis **Credits:** 3	STAT 717 Categorical Data Analysis **Credits:** 3
STAT 730 Multivariate Statistical Methods Credits: 3	STAT 730 Multivariate Statistical Methods Credits: 3
	STAT 766 Applied Data Mining/Machine Learning and Predictive Analytics **Credits:** 3
Track #2 Applied Analytics Track	***Track #2 Applied Analytics Track***
	ACCTG 844 Design of Accounting and Business Information Processes **Credits:** 3
ACCTG 856 Accounting Analytics **Credits:** 3	ACCTG 856 Accounting Analytics **Credits:** 3
CIS 732 Machine Learning and Pattern Recognition **Credits:** 3	CIS 732 Machine Learning and Pattern Recognition **Credits:** 3
ECON 686 Economics Forecasting **Credits:** 3	ECON 686 Economics Forecasting **Credits:** 3
FINAN 623 Financial Modeling **Credits:** 3	FINAN 623 Financial Modeling **Credits:** 3
	GENBA 890 Business Capstone **Credits:** 3
	GENBA 894 Data Analytics Capstone Credits: 3
GEOG 608 Geographic Information Systems II **Credits:** 3	GEOG 608 Geographic Information Systems II **Credits:** 3
GEOG 712 Internet GIS and Distributed Geographic Information Services **Credits:** 3	GEOG 712 Internet GIS and Distributed Geographic Information Services **Credits:** 3
GEOG 728 Programming for Geographic Analysis **Credits:** 3	GEOG 728 Programming for Geographic Analysis **Credits:** 3
GEOG 808 Geocomputation **Credits:** 3	GEOG 808 Geocomputation **Credits:** 3
	IMSE 680 Quantitative Problem Solving Techniques **Credits:** 3
MANGT 662 Procurement, Logistics and Supply Chain Design **Credits:** 3	MANGT 662 Procurement, Logistics and Supply Chain Design **Credits:** 3
	MANGT 663 Supply Chain Analytics **Credits:** 3
MKTG 881 Advanced Marketing Analytics **Credits:** 3	MKTG 881 Advanced Marketing Analytics **Credits:** 3
	STAT 730 Multivariate Statistical Methods **Credits:** 3
	STAT 766 Applied Data Mining/Machine Learning and Predictive Analytics **Credits:** 3
Total hours required: 30	**Total hours required: 30**

International Business Certificate

https://kstate.curriculog.com/proposal:3940/form

The certificate in international business is open to all students, and it appeals to students seeking adventure, growth, and international exposure that will enhance their personal and professional development. The certificate will be awarded to students who achieve a superior level of expertise in international aspects of business. This certificate will be noted on the student's transcript.

~~**Foreign language requirement:**~~

- ~~Domestic student policy:~~
  - ~~6 credit hours of upper level courses (beyond Level 4) in the foreign language sequence.~~
- ~~International student policy:~~
  - ~~The CIB requires proficiency in two languages. Therefore, students for whom English is not the primary language will complete a native language proficiency assessment through the Modern Languages Department to verify adequate proficiency in their native language. Students must pass the assessment to be able to use the indicated language as their native language for the CIB.~~
  - ~~An additional 6 credit hours of 300 level or higher course work focusing on communication or English writing and literature, American culture, history, society, geography or politics are required. Courses must be completed from two different areas. Three hours must be from the Department of Communication Studies or the English Department and 3 hours from one of the other departments on the list. A list of approved electives is available in the Office of Student Services.~~

Change From:

Required Courses:

~~GEOG 100 - World Geography & Globalization **Credits:** 3~~

MANGT 590 - International Management **Credits:** 3

MKTG 544 - International Marketing **Credits:** 3

~~**Select 3 hours from the following list:**~~

~~ECON 681 - International Trade **Credits:** 3~~

~~ECON 682 - Development Economics **Credits:** 3~~

~~FINAN 643 - International Financial Management **Credits:** 3~~

Change To:

Required Courses: (9 credit hours)

ECON 681 International Economics **Credits:** 3

MANGT 590 - International Management **Credits:** 3

MKTG 544 - International Marketing **Credits:** 3

Students completing the international business certificate can follow the non-foreign language track or the language track.

Non-Foreign Language Track (6 credit hours)

Select 2 courses (6 credit hours) from the following list:

~~**International Overlay Course**~~ ~~Select 3 hours from the CBA approved international overlay course list. This course cannot double count with any of the other course requirements for the CIB.~~ ~~**International Experience Requirement:**~~ ~~Domestic student policy:~~ ~~Participate in a study abroad/student exchange program OR an international internship (summer, semester or year) that carries a minimum of three (3) K-State credit hours.~~ ~~International student policy:~~ ~~Studying at K-State will meet the international experience requirement.~~ **Notes:** Students must earn a minimum of a 2.50 grade point average on courses taken to fulfill the requirement of the CIB. No more than 25% of total credit hours required for the certificate program may be transfer hours. Student must earn at least 75% of credits that apply to the certificate program from Kansas	ECON 682 - Development Economics **Credits:** 3 ECON 684 – International Finance and Open Economy Macroeconomics **Credits:** 3 FINAN 643 - International Financial Management **Credits:** 3 GEOG 100 – World Geography & Globalization **Credits:** 3 MANGT 560 – Managing for Diversity and Inclusion in the Workplace **Credits**: 3 MKTG 547 – International Business **Credits**: 3 or A class approved by the Director of the International Program. Study abroad experience, international service learning, or international internship (at least 3 hours of relevant approved coursework as part of the experience). **Language Track (6 credit hours)** **Select 2 courses (6 credit hours)** Two (2) advanced language courses (fourth level proficiency) Study abroad experience, international service learning, or international internship (at least 3 hours of relevant approved coursework as part of the experience). **Notes:** Students must earn a minimum of a 2.50 grade point average on courses taken to fulfill the requirement of the CIB. No more than 25% of total credit hours required for the certificate program may be transfer hours. Student must earn at least 75% of credits that apply to the certificate program from Kansas

State University OR an approved university affiliate of Kansas State University in a foreign country. Certificate can be completed by degree seeking students at Kansas State University or obtained as a credential on its own (free standing). Students who do not intend to become a candidate for a bachelor's degree at Kansas State University must apply for admission as a non-degree, certificate-seeking student. Such students must submit the admission application, application fee, and transcripts. Applicants must provide documentation of high school or GED completion and, if college courses have been attempted, official transcripts demonstrating a cumulative GPA of 2.0 or higher for all post-secondary coursework. Students who later choose to pursue a bachelor's degree must apply for admission as a degree-seeking student. The number of students admitted into the CIB will be based on resource availability	State University OR an approved university affiliate of Kansas State University in a foreign country. Certificate can be completed by degree seeking students at Kansas State University or obtained as a credential on its own (free standing). Students who do not intend to become a candidate for a bachelor's degree at Kansas State University must apply for admission as a non-degree, certificate-seeking student. Such students must submit the admission application, application fee, and transcripts. Applicants must provide documentation of high school or GED completion and, if college courses have been attempted, official transcripts demonstrating a cumulative GPA of 2.0 or higher for all post-secondary coursework. Students who later choose to pursue a bachelor's degree must apply for admission as a degree-seeking student. The number of students admitted into the CIB will be based on resource availability

Education

Adult Learning and Leadership (Ed.D.)

https://kstate.curriculog.com/proposal:3497/form

Rationale: This proposal changes the number of dissertation hours to be better aligned with the field and peer institutions, and is indicative of the degree in today's market.

Impact: The change in research hours by itself does not impact other departments. This change has been discussed with EDCI and EDSP regarding the number of hours for Ed.D. programs in the COEd. Both departments endorse this change.

The Doctor of Education degree in Adult Learning and Leadership offered through the Educational Leadership graduate program requires a minimum of ~~94~~ post-baccalaureate, graduate credit hours. With the approval of the supervisory committee, up to 30 graduate hours earned as part of the Master's degree may be used to satisfy the degree requirements.

A. Required Academic Core Course (18 credit hours)

(Students without a master's degree in adult education must take these courses in addition to the 90 credit hours in the doctoral degree, as determined by the supervisory committee.)

EDACE 780 - Introduction to Adult Learning and Leadership **Credits:** 3
EDACE 790 - Characteristics of the Adult Learner **Credits:** 3
EDACE 818 - Critical and Social Issues in Adult Learning **Credits:** 3
EDACE 830 - Program Planning in Adult Learning and Leadership **Credits:** 3
EDACE 847 - Adult Learning and Motivation **Credits:** 3
EDCEP 816 - Research Methods in Education **Credits:** 3
or equivalent research methods course

B. Required Doctoral Courses (minimum of 12 hours form the following list or equivalent)

EDACE 916 - Foundations of Adult Learning and Leadership **Credits:** 3
EDACE 817 - Reflective Practice in Social Justice Education **Credits:** 3
EDACE 886 - Seminars in Adult Learning and Leadership **Credits:** 1-18
EDCI 910 - Multicultural Curriculum Programming **Credits:** 3
EDCEP 912 - Psychological Bases of Educational Thought and Practice **Credits:** 3
EDACE 937 - Organization and Administration of Adult Learning and Leadership **Credits:** 3

The Doctor of Education degree in Adult Learning and Leadership offered through the Educational Leadership graduate program requires a minimum of 90 post-baccalaureate, graduate credit hours. With the approval of the supervisory committee, up to 30 graduate hours earned as part of the Master's degree may be used to satisfy the degree requirements.

A. Required Academic Core Course (18 credit hours)

(Students without a master's degree in adult education must take these courses in addition to the 90 credit hours in the doctoral degree, as determined by the supervisory committee.)

- EDACE 780 - Introduction to Adult Learning and Leadership **Credits:** 3
- EDACE 790 - Characteristics of the Adult Learner **Credits:** 3
- EDACE 818 - Critical and Social Issues in Adult Learning **Credits:** 3
- EDACE 830 - Program Planning in Adult Learning and Leadership **Credits:** 3
- EDACE 847 - Adult Learning and Motivation **Credits:** 3
- EDCEP 816 - Research Methods in Education **Credits:** 3
- or equivalent research methods course

B. Required Doctoral Courses (minimum of 12 hours form the following list or equivalent)

- EDACE 916 - Foundations of Adult Learning and Leadership **Credits:** 3
- EDACE 817 - Reflective Practice in Social Justice Education **Credits:** 3
- EDACE 886 - Seminars in Adult Learning and Leadership **Credits:** 1-18
- EDCI 910 - Multicultural Curriculum Programming **Credits:** 3
- EDCEP 912 - Psychological Bases of Educational Thought and Practice **Credits:** 3

EDACE 986 - Advanced Seminars in Adult Learning and Leadership **Credits:** 1-18

C. Required Research courses (15 credit hours minimum)

EDCEP 817 - Statistical Methods in Education **Credits:** 3
EDCEP 917 - Experimental Design in Educational Research **Credits:** 3
EDLEA 838 - Qualitative Research in Education **Credits:** 3
EDLEA 938 - Advanced Data Analysis in Qualitative Methods **Credits:** 3
EDLEA 948 - Data Representation and Writing in Qualitative Research **Credits:** 3
or quantitative/qualitative research courses taken from other disciplines at K-State and approved by the supervisory committee.

D. Elective Courses (Select electives appropriate to the area of emphasis that satisfy the minimum 94 credit hours for the program.)

EDACE prefix, additional quantitative/qualitative research courses or other disciplines at K-State and approved by the supervisory committee.

E. Experiential and Individualized Courses (0-6 credit hours)

EDACE 733 - Practicum in Adult Learning and Leadership **Credits:** 1-6
EDACE 775 - Readings in Adult Learning and Leadership **Credits:** 1-3
EDACE 795 - Problems in Adult Learning and Leadership **Credits:** 1-18

F. Clinical Experience (~~12~~ credit hours)

- EDACE 991 - Internship in Adult Learning and Leadership **Credits:** 1-~~18~~
- or equivalent

- EDACE 937 - Organization and Administration of Adult Learning and Leadership **Credits:** 3
- EDACE 986 - Advanced Seminars in Adult Learning and Leadership **Credits:** 1-18

C. Required Research courses (15 credit hours minimum)

- EDCEP 817 - Statistical Methods in Education **Credits:** 3
- EDCEP 917 - Experimental Design in Educational Research **Credits:** 3
- EDLEA 838 - Qualitative Research in Education **Credits:** 3
- EDLEA 938 - Advanced Data Analysis in Qualitative Methods **Credits:** 3
- EDLEA 948 - Data Representation and Writing in Qualitative Research **Credits:** 3
- or quantitative/qualitative research courses taken from other disciplines at K-State and approved by the supervisory committee.

D. Elective Courses (Select electives appropriate to the area of emphasis that satisfy the minimum 90 credit hours for the program.)

EDACE prefix, additional quantitative/qualitative research courses or other disciplines at K-State and approved by the supervisory committee.

E. Experiential and Individualized Courses (0-6 credit hours)

- EDACE 733 - Practicum in Adult Learning and Leadership **Credits:** 1-6
- EDACE 775 - Readings in Adult Learning and Leadership **Credits:** 1-3
- EDACE 795 - Problems in Adult Learning and Leadership **Credits:** 1-18

F. Clinical Experience (6 credit hours)

- EDACE 991 - Internship in Adult Learning and Leadership **Credits:** 1-6
- or equivalent

G. Doctoral research (minimum of 12 credit hours) • EDACE 999 - Doctoral Research **Credits:** 1-18 **Preliminary Examination** The requirement for the preliminary examination is satisfactory completion of all segments of a monitored written examination of at least 12 hours over all areas of the program of study.	**G. Doctoral research (minimum of 12 credit hours)** • EDACE 999 - Doctoral Research **Credits:** 1-18 **Preliminary Examination** The requirement for the preliminary examination is satisfactory completion of all segments of a monitored written examination of at least 12 hours over all areas of the program of study.

Educational Leadership (Ed.D.)

https://kstate.curriculog.com/proposal:3498/form

Rationale: The Educational Leadership program is wishing to change the minimum of hours for the Ed.D. program to minimum of 90 to better reflect current trends in the market and to better align with peer institutions.

Impact: The change in research hours by itself does not impact other departments. This change has been discussed with EDCI and EDSP regarding the number of hours for Ed.D. programs in the COEd. Both departments endorse this change.

Required Curriculum (~~94~~ credit hours) The Doctor of Education (Ed.D.) in Educational Leadership requires a minimum of 94 post-baccalaureate, graduate credit hours. With approval of the supervisory committee, up to 30 graduate hours earned as part of the master's degree may be used to satisfy the degree requirements. All courses are three credit hours unless otherwise noted. **Prerequisite:** • EDCEP 816 – Research Methods in Education –OR– • EDLEA 886 – Seminar in Research Methods for School Leaders –OR– other	**Required Curriculum (90 credit hours)** The Doctor of Education (Ed.D.) in Educational Leadership requires a minimum of 94 post-baccalaureate, graduate credit hours. With approval of the supervisory committee, up to 30 graduate hours earned as part of the master's degree may be used to satisfy the degree requirements. All courses are three credit hours unless otherwise noted. **Prerequisite:** • EDCEP 816 – Research Methods in Education – OR– • EDLEA 886 – Seminar in Research Methods for School Leaders –OR– other approved

approved course (waived if 816 or 886 is in the M.S. degree) **Foundations (12 credits)** • EDLEA 801 – Ethical Dimensions of Educational Leadership • EDLEA 810 – Historical and Philosophical Analysis of Leadership in Education (waived if a similar course has been taken) • EDLEA 845 – Leadership for Diverse Populations • EDLEA 928 – Organizational Theory **Research Courses (15 credits)** • EDCEP 817 – Statistical Methods in Education (or other approved course) • EDLEA 838 – Qualitative Research in Education (or other approved course) • Advanced research methods concentration (9 credits) **Area of Emphasis (45 credits)** • Transfer from master's degree (30 credits maximum) • Electives (15 credits, or as approved by the supervisory committee) **Clinical Experience (minimum 6 credits)** • EDLEA 991 – Doctoral Internship in Educational Leadership **Dissertation Research (~~16~~ credits)** • EDLEA 999 – Research in Educational Leadership	course (waived if 816 or 886 is in the M.S. degree) **Foundations (12 credits)** • EDLEA 801 – Ethical Dimensions of Educational Leadership • EDLEA 810 – Historical and Philosophical Analysis of Leadership in Education (waived if a similar course has been taken) • EDLEA 845 – Leadership for Diverse Populations • EDLEA 928 – Organizational Theory **Research Courses (15 credits)** • EDCEP 817 – Statistical Methods in Education (or other approved course) • EDLEA 838 – Qualitative Research in Education (or other approved course) • Advanced research methods concentration (9 credits) **Area of Emphasis (45 credits)** • Transfer from master's degree (30 credits maximum) • Electives (15 credits, or as approved by the supervisory committee) **Clinical Experience (minimum 6 credits)** • EDLEA 991 – Doctoral Internship in Educational Leadership **Dissertation Research (12 credits)** • EDLEA 999 – Research in Educational Leadership

Special Education (M.S.)

Rationale: What is changing? Program is changing from 39 to 30 hours and the content will be available online.

Rationale: Why is it changing? This will better align the KSU SPED program to others in the state.

Impact: None listed.

Program Requirements **High Incidence Disabilities: Elementary or Secondary** **Prerequisites** Eligible for licensure in elementary or secondary education, and one of the following courses: EDSP 323 - Exceptional Student in the Secondary School (2) EDSP 324 - Exceptional Child in the Regular Classroom (3) **Required Courses** ~~EDSP 710 - Education of Exceptional Individuals **Credits:** 3~~ ~~EDCEP 715 - Principles of Assessment **Credits:** 3~~ ~~EDSP 723 - Characteristics of Cognitive Disorders **Credits:** 3~~ ~~EDSP 728 - Characteristics of Emotional and Behavioral Disorders **Credits:** 3~~ EDSP 742 - Interventions: Emotional and Behavioral Disorders **Credits:** 3 EDSP 743 - Interventions: Academic Disabilities **Credits:** 3 EDSP 745 - The Consulting Process in Special Education **Credits:** 3 ~~E~~DSP 777 ~~- Behavior MANAGEMENT **Credits:**~~ 3 EDSP 778 - Technology for Special Education **Credits:** 3 EDSP 785 - Practicum I **Credits:** 3 EDSP 800 - Practicum II **Credits:** 3 EDSP 830 - Assessment in Special Education **Credits:** 3 EDSP 848 - Transitions in Special Education **Credits:** 3 **Electives**	**Program Requirements** **High Incidence Disabilities: Elementary or Secondary** **Prerequisites** Eligible for licensure in elementary or secondary education, and one of the following courses: EDSP 323 - Exceptional Student in the Secondary School (2) EDSP 324 - Exceptional Child in the Regular Classroom (3) **Required Courses** EDSP 711 Characteristics of Exceptional Students (3) EDSP 742 Interventions: Emotional Behavior Disorders (3) EDSP 743 Interventions: Academic Disorders (3) EDSP 745 Consulting Process in Special Education (3) EDSP 777 Social Emotional Learning and Behavioral Strategies (3) EDSP 778 Technology in Special Education (3) EDSP 785 Practicum I (3) EDSP 800 Practicum II (3) EDSP 830 Assessment in Special Education (3) EDSP 848 Transitions in Special Educaiton (3) **Total 30**

EDSP 844 - Special Education in Secondary Schools **Credits:** 2 (Required for adding secondary level endorsement to elementary level endorsement and for all secondary special education endorsements. Offered in spring semesters of odd-numbered years.) **Low Incidence Special Education: Elementary or Secondary** All courses required for High Incidence endorsement and: EDSP 841 - Interventions: Low Incidence Special Education **Credits:** 3 EDSP 849 - Interventions: Autism Spectrum Disorders **Credits:** 3 EDSP 885 - Practicum in Education of Individuals with Low Incidence Special Education Needs **Credits:** 1-6 *Note: EDSP 885 must be taken for 3 credit hours	EDSP 844 - Special Education in Secondary Schools **Credits:** 2 (Required for adding secondary level endorsement to elementary level endorsement and for all secondary special education endorsements. Offered in spring semesters of odd-numbered years.) **Total (Secondary Program) 32** **Low Incidence Special Education: Elementary or Secondary** All courses required for High Incidence endorsement and: EDSP 841 - Interventions: Low Incidence Special Education **Credits:** 3 EDSP 849 - Interventions: Autism Spectrum Disorders **Credits:** 3 EDSP 885 - Practicum in Education of Individuals with Low Incidence Special Education Needs **Credits:** 1-6 *Note: EDSP 885 must be taken for 3 credit hours

Engineering

Biological Engineering Secondary Major

Rationale: The secondary major has not been updated for several years. There have been several courses added to department's curriculums that would be relevant to the secondary major and give a wider range of student's accessibility to completing the program.

No impacts.

Dan Higgins, CHM head, no concerns, contacted 4/17/2019.

Brian Spooner, BIOL head, no response, contacted 4/17/2019.

Program Prerequisites

BIOL 198 - Principles of Biology **Credits:** 4
CHM 210 - Chemistry I **Credits:** 4
and
CHM 230 - Chemistry II **Credits:** 4
PHYS 213 - Engineering Physics I **Credits:** 5
and
PHYS 214 - Engineering Physics II **Credits:** 5
MATH 220 - Analytic Geometry and Calculus I **Credits:** 4
MATH 221 - Analytic Geometry and Calculus II **Credits:** 4
MATH 222 - Analytic Geometry and Calculus III **Credits:** 4
MATH 340 - Elementary Differential Equations **Credits:** 4

Program Overview

Twenty-four (24) credit hours beyond the prerequisites described above are required with at least 10 of the 24 credit hours having biological content. Courses from a minimum of three departments are required.

Biological Science courses

A minimum of 4 credit hours from the courses listed below.

* BIOL 450 - Modern Genetics **Credits:** 4
* BIOL 455 - General Microbiology **Credits:** 4
* BIOL 500 - Plant Physiology **Credits:** 3
* BIOL 529 - Ecology **Credits:** 3
* BIOL 541 - Cell Biology **Credits:** 3
* ASI 533 - Anatomy and Physiology **Credits:** 4
~~* AP 773 - Bioinstrumentation Laboratory **Credits:** 1~~

Program Prerequisites

- BIOL 198 - Principles of Biology **Credits:** 4
- CHM 210 - Chemistry I **Credits:** 4
- and
- CHM 230 - Chemistry II **Credits:** 4
- Or
- CHM 220 - Honors Chemistry I **Credits:** 5
- and
- CHM 250 – Honors Chemistry II **Credits:** 5
- PHYS 213 - Engineering Physics I **Credits:** 5
- and
- PHYS 214 - Engineering Physics II **Credits:** 5
- MATH 220 - Analytic Geometry and Calculus I **Credits:** 4
- MATH 221 - Analytic Geometry and Calculus II **Credits:** 4
- MATH 222 - Analytic Geometry and Calculus III **Credits:** 4
- MATH 340 - Elementary Differential Equations **Credits:** 4

Program Overview

Twenty-four (24) credit hours beyond the prerequisites described above are required with at least 10 of the 24 credit hours having biological content. Courses from a minimum of three departments are required.

Biological Science courses

A minimum of 4 credit hours from the courses listed below.

- * BIOL 341 – Human Body I **Credits:** 4
- * BIOL 342 - Human Body II **Credits:** 4
- * BIOL 450 - Modern Genetics **Credits:** 4
- * BIOL 455 - General Microbiology **Credits:** 4
- * BIOL 500 - Plant Physiology **Credits:** 3
- * BIOL 529 - Ecology **Credits:** 3
- * BIOL 541 - Cell Biology **Credits:** 3

Chemistry and Biochemistry courses

A minimum of 4 credit hours from the courses listed below.

CHM 350 - General Organic Chemistry **Credits:** 3
CHM 351 - General Organic Chemistry Laboratory **Credits:** 2
CHM 531 - Organic Chemistry I **Credits:** 3
CHM 532 - Organic Chemistry Laboratory **Credits:** 2
CHM 550 - Organic Chemistry II **Credits:** 3
CHM 585 - Physical Chemistry I **Credits:** 3
CHM 595 - Physical Chemistry II **Credits:** 3
CHM 596 - Physical Methods Laboratory **Credits:** 1-2
* BIOCH 521 - General Biochemistry **Credits:** 3
* BIOCH 522 - General Biochemistry Laboratory **Credits:** 3
* BIOCH 755 - Biochemistry I **Credits:** 3
* BIOCH 756 - Biochemistry I Laboratory **Credits:** 2
* BIOCH 765 - Biochemistry II **Credits:** 3

Engineering Science courses

Minimum of 9 credit hours from among the courses listed below.

* BAE 345 - Properties of Biological Materials **Credits:** 2
BAE 535 - Structures and Environment Engineering **Credits:** 3
* BAE 545 - Biological Process Engineering **Credits:** 3
BAE 640 - Instrumentation and Control for Biological Systems **Credits:** 3
* BAE 740 - Biomaterials Processing **Credits:** 3
* CE 563 - Environmental Engineering Fundamentals **Credits:** 3

- * ASI 533 - Anatomy and Physiology **Credits:** 4

Chemistry and Biochemistry courses

A minimum of 4 credit hours from the courses listed below.

- CHM 350 - General Organic Chemistry **Credits:** 3
- CHM 351 - General Organic Chemistry Laboratory **Credits:** 2
- CHM 531 - Organic Chemistry I **Credits:** 3
- CHM 532 - Organic Chemistry Laboratory **Credits:** 2
- CHM 550 - Organic Chemistry II **Credits:** 3
- CHM 585 - Physical Chemistry I **Credits:** 3
- CHM 595 - Physical Chemistry II **Credits:** 3
- CHM 596 - Physical Methods Laboratory **Credits:** 1-2
- * BIOCH 521 - General Biochemistry **Credits:** 3
- * BIOCH 522 - General Biochemistry Laboratory **Credits:** 3
- * BIOCH 755 - Biochemistry I **Credits:** 3
- * BIOCH 756 - Biochemistry I Laboratory **Credits:** 2
- * BIOCH 765 - Biochemistry II **Credits:** 3

Engineering Science courses

Minimum of 9 credit hours from among the courses listed below.

- * BAE 345 - Properties of Biological Materials **Credits:** 2
- * BAE 346 - Properties of Biological Materials Laboratory **Credits:** 1
- * BAE 445 – Biological Engineering Fundamentals **Credits:** 3
- BAE 535 - Structures and Environment Engineering **Credits:** 3
- * BAE 545 - Biological Process Engineering **Credits:** 3

CE 565 - Water and Wastewater Engineering **Credits:** 3 * CE 766 - Wastewater Engineering: Biological Processes **Credits:** 3 CHE 320 - Chemical Process Analysis **Credits:** 3 CHE 520 - Chemical Engineering Thermodynamics I **Credits:** 2 CHE 521 - Chemical Engineering Thermodynamics II **Credits:** 3 CHE 530 - Transport Phenomena I **Credits:** 3 CHE 531 - Transport Phenomena II **Credits:** 3 CHE 550 - Chemical Reaction Engineering **Credits:** 3 * CHE 626 - Bioseparations **Credits:** 3 * CHE 715 - Biochemical Engineering **Credits:** 3 * ECE 571 - Introduction to Biomedical Engineering **Credits:** 3 ~~* ECE 771 - Control Theory Applied to Bioengineering **Credits:** 3~~ ~~* ECE 772 - Theory and Techniques of Bioinstrumentation **Credits:** 2~~ ~~* ECE 773 - Bioinstrumentation Design Laboratory **Credits:** 1~~ ME 513 - Thermodynamics I **Credits:** 3 ME 523 - Thermodynamics II **Credits:** 3 ME 571 - Fluid Mechanics **Credits:** 3 ME 573 - Heat Transfer **Credits:** 3	• BAE 640 - Instrumentation and Control for Biological Systems **Credits:** 3 • * BAE 642 – Fundamentals of Conversion of Biorenewable Resources **Credits:** 3 • BAE 643 – Life Cycle Assessment **Credits:** 3 • *BAE 645 – Bioenvironmental Reaction Engineering **Credits:** 3 • * BAE 650 – Energy and Biofuel Engineering **Credits:** 3 • * BAE 651 – Air Pollution Engineering **Credits:** 3 • * BAE 663 – Environmental and Ecological Risk Assessment **Credits:** 3 • * BAE 665 – Ecological Engineering Design **Credits:** 3 • * BAE 740 - Biomaterials Processing **Credits:** 3 • * CE 563 - Environmental Engineering Fundamentals **Credits:** 3 • CE 565 - Water and Wastewater Engineering **Credits:** 3 • * CE 625 – Principles of Geoenvironmental Engineering **Credits:** 3 • • * CE 766 - Wastewater Engineering: Biological Processes **Credits:** 3 • CHE 320 - Chemical Process Analysis **Credits:** 3 • CHE 520 - Chemical Engineering Thermodynamics I **Credits:** 2 • CHE 521 - Chemical Engineering Thermodynamics II **Credits:** 3 • CHE 530 - Transport Phenomena I **Credits:** 3 • CHE 531 - Transport Phenomena II **Credits:** 3 • CHE 550 - Chemical Reaction Engineering **Credits:** 3 • * CHE 626 - Bioseparations **Credits:** 3 • * CHE 715 - Biochemical Engineering **Credits:** 3 • * CHE 725 - Biotransport Phenomena **Credits:** 3 • * ECE 571 - Introduction to Biomedical Engineering **Credits:** 3 • ME 513 - Thermodynamics I **Credits:** 3 • ME 523 - Thermodynamics II **Credits:** 3 • ME 571 - Fluid Mechanics **Credits:** 3

Capstone Design Experience

At least three credit hours of coursework comprised of undergraduate biological engineeringresearch or a design project incorporating biological engineering are required. Any research project having demonstrated biological content and fulfilling the research requirements of a student's honors program will satisfy this requirement. Courses in this list that have biological content can be included in the 10 credit hours of courses with biological content.

Undergraduate Research

- BAE 499 - Honors Research in Biological and Agricultural Engineering **Credits:** 1-18
- BAE 620 - Problems in Agricultural Engineering **Credits:** 1-18
- CHE 499 - Honors Research in Chemical Engineering **Credits:** 1-6
- CHE 580 - Problems in Chemical Engineering or Materials Science **Credits:** 1-18
- CE 499 - Honors Research in Civil Engineering **Credits:** 1-18
- CE 790 - Problems in Civil Engineering **Credits:** 1-18
- ECE 499 - Honors Research in Electrical and Computer Engineering **Credits:** 1-18
- ECE 690 - Problems in Electrical and Computer Engineering **Credits:** 1-18

Design project courses

- BAE 536 - Biological Systems Engineering Senior Design **Credits:** 3
- BAE 636 - Biological Systems Engineering Design Project **Credits:** 1-3
- CHE 571 - Chemical Engineering Systems Design II **Credits:** 3
- CE 585 - Civil Engineering Project **Credits:** ~~1-3~~
- Other courses may be included if it can be demonstrated that the student has completed a
- ME 573 - Heat Transfer **Credits:** 3

Capstone Design Experience

At least three credit hours of coursework comprised of undergraduate biological engineering research or a design project incorporating biological engineering are required. Any research project having demonstrated biological content and fulfilling the research requirements of a student's honors program will satisfy this requirement. Courses in this list that have biological content can be included in the 10 credit hours of courses with biological content.

Undergraduate Research

- BAE 497 – Undergraduate Research Experience **Credits:** 0-3
- BAE 499 - Honors Research in Biological and Agricultural Engineering **Credits:** 1-18
- BAE 620 - Problems in Agricultural Engineering **Credits:** 1-18
- CHE 497 – Undergraduate Research Experience **Credits:** 0-3
- CHE 499 - Honors Research in Chemical Engineering **Credits:** 1-6
- CHE 580 - Problems in Chemical Engineering or Materials Science **Credits:** 1-18
- CE 497 – Undergraduate Research Experience **Credits:** 0-3
- CE 499 - Honors Research in Civil Engineering **Credits:** 1-18
- CE 790 - Problems in Civil Engineering **Credits:** 1-18
-
- ECE 497 – Undergraduate Research Experience **Credits:** 0-3
- ECE 499 - Honors Research in Electrical and Computer Engineering **Credits:** 1-18
- ECE 690 - Problems in Electrical and Computer Engineering **Credits:** 1-18

Design project courses

- BAE 536 - Biological Systems Engineering Senior Design **Credits:** 3
- BAE 636 - Biological Systems Engineering Design Project **Credits:** 1-3
- CHE 571 - Chemical Engineering Systems Design II **Credits:** 3

significant design experience incorporating biological engineering content. **Note** ***Courses with biological content.	• CE 585 - Civil Engineering Project **Credits:** 3 • ECE 591 – Senior Design Experience II **Credits:** 2 • Other courses may be included if it can be demonstrated that the student has completed a significant design experience incorporating biological engineering content. **Note** ***Courses with biological content.

Computer Science Certificate

Rationale: What is changing? CC 110 is being added to the curriculum.

Rationale: Why is it changing? CC 110 is being made the prerequisite to CC 210. Adding the course to the curriculum requirements makes these requirements more self-contained.

Impact: No impact outside the college. Added CC 110.

The main purpose of the Computer Science Certificate program is to provide a scalable mechanism to educate a wide variety of students in the core knowledge of computer science. The courses in this program will prepare students to work with or as software developers in a wide variety of fields and industries. The main focus of the courses is to develop the programming skills and insight required for such jobs. **Admission Procedures** • The certificate program is open to any student admitted to a K-State degree program. The program will also be open to non-degree seeking students who apply to K-State as a non-degree seeking students. • Non-K-State Students must apply to K-State as non-degree seeking undergraduate by completing the online application form. • Students currently enrolled in a K-State degree program must complete the online Application for Undergraduate Certificate Program on the Computer Science webpage, similar to a minor declaration (see https://www.cs.ksu.edu/undergraduate/minor/) . • Online application link: http://www.cs.ksu.edu/core/certificate-application/Apply.html	The main purpose of the Computer Science Certificate program is to provide a scalable mechanism to educate a wide variety of students in the core knowledge of computer science. The courses in this program will prepare students to work with or as software developers in a wide variety of fields and industries. The main focus of the courses is to develop the programming skills and insight required for such jobs. **Admission Procedures** • The certificate program is open to any student admitted to a K-State degree program. The program will also be open to non-degree seeking students who apply to K-State as a non-degree seeking students. • Non-K-State Students must apply to K-State as non-degree seeking undergraduate by completing the online application form. • Students currently enrolled in a K-State degree program must complete the online Application for Undergraduate Certificate Program on the Computer Science webpage, similar to a minor declaration (see https://www.cs.ksu.edu/undergraduate/minor/) . • Online application link: http://www.cs.ksu.edu/core/certificate-application/Apply.html

Required Courses (~~14~~ credit hours) • CC 210 - Fundamental Computer Programming Concepts Credits: 4 • CC 310 - Data Structures and Algorithms I Credits: 3 • CC 315 - Data Structures and Algorithms II Credits: 3 • CC 410 - Advanced Programming Credits: 4 Note: All of these courses are delivered through a state-of-the-art online computer science educational platform.	**Required Courses (17 credit hours)** • CC 110 – Introduction to Computing Credits: 3 • CC 210 - Fundamental Computer Programming Concepts Credits: 4 • CC 310 - Data Structures and Algorithms I Credits: 3 • CC 315 - Data Structures and Algorithms II Credits: 3 • CC 410 - Advanced Programming Credits: 4 Note: All of these courses are delivered through a state-of-the-art online computer science educational platform.

Health and Human Sciences

Community Health Certificate

Rationale: What is changing? **Changing from degree seeking to non-degree seeking.**

Rationale: Why is it changing? This change is to allow students and external working professionals to attain this content without needing to complete a degree.

Impact Statement:
Dr. Mark Haub (FNDH) contacted the following on September 20, 2019: Dr. Sonya Lutter, Professor, Family Studies & Human Service, Dr. Bronwyn Fees, Associate Dean/Professor, Health & Human Sciences Dean, Dr. Craig Harms, Department Head Professor of Exercise Physiology, Dr. Gayle Doll, Associate Professor, Health & Human Sciences Dean. On September 20, 2019 Dr. Haub heard from Dr. Doll-"Yes, Mark, that sounds like a good idea" (Please see attached) and Dr. Lutter "I definitely support the idea of the certificate being available to non-degree seeking students." Dr. Fees responded "I think that offering it as an external certificate online non-degree is a great idea" Dr. Harms "this sounds like a good idea. We support your proposal to include non-degree students for the certificate." See attached for Dr. Fees and Dr. Harms response.

Community Health Certificate The purpose for the Community Health certificate is to provide specific training to individuals seeking knowledge and experiences pertaining to Community Health. Based on information and dialogue with the Kansas Community Health Worker Coalition, this certificate program was designed to meet their expressed needs of training Community Health Workers. A Community Heath Worker is someone who works with and educates small groups and communities to improve the health of their constituents. This academic certificate program is not a licensing or credentialing certification. This certificate program will provide a community and public health-focused vocational direction for our students, and those currently working in public health seeking enhanced training. The courses are designed to complement several degree programs within Kansas State University. The content will require specific training in: public health and social determinants of heath for small groups and community assessments/outcomes; and, lifestyle behaviors highly related to health risks. Course Requirements (15 credit hours) Core Courses (8 credit hours) FNDH 115 - Introduction to Health and Nutrition Professions Credits: 2 FNDH 352 - Personal Wellness Credits: 3 HDFS 301 - The Helping Relationship Credits: 3 Supportive Courses (two of the following, 6-7 credit hours) FNDH 132 - Basic Nutrition Credits: 3 GERON 315 - Introduction to Gerontology Credits: 3 GNHE 310 - Human Needs Credits: 3 HDFS 552 - Families and Diversity Credits: 3 KIN 220 - Biobehavioral Bases of Physical Activity Credits: 4	Community Health Certificate The purpose for the Community Health certificate is to provide specific training to individuals seeking knowledge and experiences pertaining to Community Health. Based on information and dialogue with the Kansas Community Health Worker Coalition, this certificate program was designed to meet their expressed needs of training Community Health Workers. A Community Health Worker is someone who works with and educates small groups and communities to improve the health of their constituents. This academic certificate program is not a licensing or credentialing certification. This certificate program will provide a community and public health-focused vocational direction for our students, and those currently working in public health seeking enhanced training. The courses are designed to complement several degree programs within Kansas State University. The content will require specific training in: public health and social determinants of heath for small groups and community assessments/outcomes; and, lifestyle behaviors highly related to health risks. Course Requirements (15 credit hours) Core Courses (8 credit hours) FNDH 115 - Introduction to Health and Nutrition Professions Credits: 2 FNDH 352 - Personal Wellness Credits: 3 HDFS 301 - The Helping Relationship Credits: 3 Supportive Courses (two of the following, 6-7 credit hours) FNDH 132 - Basic Nutrition Credits: 3 GERON 315 - Introduction to Gerontology Credits: 3 GNHE 310 - Human Needs Credits: 3 HDFS 552 - Families and Diversity Credits: 3 KIN 220 - Biobehavioral Bases of Physical Activity Credits: 4

PFP 105 - Introduction to Personal Financial Planning Credits: 3 Practical Requirement (1-2 credit hours) FNDH 650 - Practicum in Food, Nutrition, Dietetics and Health Credits: 1-6 Or HDFS 411 - HDFS Practicum Credits: 0-3 Total hours required: 15	PFP 105 - Introduction to Personal Financial Planning Credits: 3 Practical Requirement (1-2 credit hours) FNDH 650 - Practicum in Food, Nutrition, Dietetics and Health Credits: 1-6 Or HDFS 411 - HDFS Practicum Credits: 0-3 Total hours required: 15