Attachment 1a

Academic Affairs

Consent Agenda Supplemental Information - Curriculum Proposals

FS Exec Committee Review - February 27, 2018 Meeting

In order by College, not by the Curriculog Agenda

College of Arts and Sciences

Add: Concurrent B.S./M.S. in Statistics

- Admission Requirements the Concurrent BS/MS program in Statistics

  - Students may apply for the concurrent BS/MS program from the second semester of the sophomore year through the second semester of the junior year (when they have accumulated 45-90 credit hours toward the BS degree). Students may apply with higher credit-hour accumulation or during first semester of their senior year with special permission from the Department Head or the Director of Graduate Studies of the Statistics department.
  - Students must have completed MATH 220, MATH 221, MATH 222, STAT 325/340/350 (or higher), STAT 341/351, STAT 510, and one additional STAT course at the 500-level or higher, either at K-State or by transfer credit.
  - Minimum standards to apply to the concurrent program are a cumulative GPA of 3.00 and a GPA of 3.25 in the STAT/MATH Core (above) courses, with a recommended GPA of 3.5 or higher in STAT/MATH for successful admission. Retention in the program requires maintenance of a 3.00 GPA in both undergraduate and graduate coursework.

- Application Process

The application process will be the same as for the traditional MS degree except completion of the BS degree is not required. The following steps are required:

  - Fill out the online KSU graduate application. Required supporting documents should be uploaded to the online application as requested in the application.

- All supplemental documents required by the Statistics Department (e.g., statement of objectives, scanned copies of transcripts, letters of recommendation) will be requested as the on-line application is completed.
- A copy of an applicant's statement of objectives is to be uploaded. A written personal statement of academic objectives, giving specific reasons for the selection of the discipline of Statistics for study, contemplated research areas and professional plans. In addition, the statement can also mention one of more KSU faculty with which the applicant has an interest in working with.
- An electronic copy (PDF preferred) of applicant's transcript(s) from each college or university where applicant completed any undergraduate coursework and completed any post-baccalaureate course work or degrees is to be uploaded.
- Provide three references. Recommenders will upload their letters of recommendation directly to the applicant's application.

- Program Format and Guidelines

A maximum of 9 graduate credit hours will count toward both the BS and MS degrees. The 9 graduate credits counted toward both degrees should be chosen under the guidance of the student's adviser. These courses may be used either to fulfill the specific Statistics BS requirements or additional 700-level STAT courses or upper division electives.

Upon acceptance into the concurrent degree program, the student will be assigned a provisional graduate advisor from the Graduate Faculty in Statistics. The student will work closely with the provisional advisor to choose appropriate coursework and a major professor by the end of the first full semester following the student's acceptance into the concurrent degree program, or the second semester of the student's junior year, whichever is later. The undergraduate advisor will advise the student in the academic progress toward the BS degree, and the provisional advisor and major professor will supervise the student's academic progress and preparation for the MS degree capstone (examination or report). A typical MS program of study for students in the concurrent program would be identical to that for students in the traditional MS program:

Examination Option: The student must take 36 hours of course work and pass a comprehensive exam approved by the supervisory committee.

Report Option: The student must take 30 credit hours of course work and write a report for 2 additional credit hours (STAT 898).

Rationale: The Concurrent BS/MS program provides exceptional undergraduate students the opportunity to obtain both a BS and MS in Statistics in 5 years, a shorter time than typically is required to earn a BS plus MS, if both degrees are pursued separately. The program allows students to pursue either the comprehensive exam or report capstone options for the MS in Statistics. The goal of the program is to provide graduates with a strong foundation suitable for further study at the doctoral level through the more traditional mathematical statistics track or to

equip graduates for statistical work in industry or government through the data science and analytics track.

Impact (i.e. if this impacts another unit) – Statement should include the date when the head of a unit was contacted, and the response or lack of: No Impact outside college.

Projected first term offered: Fall 2018

Change: Gender, Women, and Sexuality Studies B.A/B.S.

Core course requirements (15 credit hours) GWSS 305 - Advanced Fundamentals of Gender, Women, and Sexuality Studies Credits: 3 GWSS 405 - Resistance and Movements for Social Change Credits: 3 GWSS 410 - Feminist Thought Credits: 3 GWSS 510 - Research Methods in Gender, Women, and Sexuality Studies Credits: 3 GWSS 610 - Capstone Seminar in Gender, Women, and Sexuality Studies Credits: 3 Electives (15 credit hours) The remaining 15 credit hours necessary for the major can be selected from approved electives offered by the GWSS and other K-State departments. Student must complete at least one course (3 credit hours) in each of three different clusters. CLUSTERS: Theory and Construction of Identity Social Change, Social Justice, and Education Arts and Representations Law and the Public Arena Health, Science, and Technology Overlay Requirement One of these electives must be numbered 500	Core course requirements (15 credit hours) GWSS 305 - Advanced Fundamentals of Gender, Women, and Sexuality Studies Credits: 3 GWSS 405 - Resistance and Movements for Social Change Credits: 3 GWSS 410 - Feminist Thought Credits: 3 GWSS 510 - Research Methods in Gender, Women, and Sexuality Studies Credits: 3 GWSS 610 - Capstone Seminar in Gender, Women, and Sexuality Studies Credits: 3 Electives (15 credit hours) The remaining 15 credit hours necessary for the major can be selected from approved electives offered by the GWSS and other K-State departments. Student must complete at least one course (3 credit hours) in each of three different clusters. CLUSTERS: Theory and Construction of Identity Social Change, Social Justice, and Education Arts and Representations Law and the Public Arena Health, Science, and Technology Overlay Requirement One of these electives must be numbered 500 or above (see below list for classes assigned to each

or above (see below list for classes assigned to each distribution cluster). Distribution Clusters See list for classes assigned to each distribution cluster. *Theory and Construction of Identity* AMETH 354 - Asian American Perspectives Credits: 3 (Racist Love: Asian Americans and the Model-Minority Myth) AMETH 354 - Asian American Perspectives Credits: 3 (Identity Politics in Asian-American Drama) AMETH 370 - Politics of Women of Color Credits: 3 AMETH 450 - Comparative Ethnic Studies Credits: 3 AMETH 461 - Transformative Thought Credits: 3 AMETH 560 - Topics in American Ethnic Studies Credits: 1-4 (Erotic Justice: Audre Lorde) ANTH 305 - Cultures of South Asia Credits: 3 ANTH 328 - Topics in Linguistic Anthropology Credits: 3 ANTH 710 - Writing Cultures: Ethnographic Methods Credits: 3 ENGL 315 - Introduction to Cultural Studies Credits: 3 ENGL 705 - Theories of Cultural Studies Credits: 3 HDFS 350 - Family Relationships and Gender Roles Credits: 3 GWSS 105 - Introduction to Gender, Women, and Sexuality Studies Credits: 3 GWSS 321 - Latina's Life Stories Credits: 3 GWSS 325 - Queer Studies: Concepts, History, and Politics Credits: 3 GWSS 460 - Coming Out and Sexual	distribution cluster). ## Distribution Clusters See list for classes assigned to each distribution cluster. *Theory and Construction of Identity* AMETH 354 - Asian American Perspectives Credits: 3 (Racist Love: Asian Americans and the Model-Minority Myth) AMETH 354 - Asian American Perspectives Credits: 3 (Identity Politics in Asian-American Drama) AMETH 370 - Politics of Women of Color Credits: 3 AMETH 450 - Comparative Ethnic Studies Credits: 3 AMETH 461 - Transformative Thought Credits: 3 AMETH 560 - Topics in American Ethnic Studies Credits: 1-4 (Erotic Justice: Audre Lorde) ANTH 305 - Cultures of South Asia Credits: 3 ANTH 328 - Topics in Linguistic Anthropology Credits: 3 ANTH 710 - Writing Cultures: Ethnographic Methods Credits: 3 ENGL 315 - Introduction to Cultural Studies Credits: 3 ENGL 705 - Theories of Cultural Studies Credits: 3 HDFS 350 - Family Relationships and Gender Roles Credits: 3 GWSS 105 - Introduction to Gender, Women, and Sexuality Studies Credits: 3 GWSS 321 - Latina's Life Stories Credits: 3 GWSS 325 - Queer Studies: Concepts, History, and Politics Credits: 3

Identity Credits: 3 GWSS 500 - Topics in Gender, Women, and Sexuality Studies Credits: 1-3 (Women of Color Feminism) GWSS 580 - Women and Religion Credits: 3 GWSS 585 - Women and Islam Credits: 3 GWSS 700 - Advanced Topics in Gender, Women, and Sexuality Studies Credits: 1-3 (Women of Color) GWSS 700 - Advanced Topics in Gender, Women, and Sexuality Studies Credits: 1-3 (Sexuality Studies) HIST 538 - Women in Sport Credits: 3 PHILO 150 - Introduction to Philosophy of Feminism Credits: 3 PHILO 331 - Philosophy of Gender Credits: 3 PHILO 590 - Topics in Philosophy Credits: 3 (Philosophy of Feminism) SOCIO 545 - The Sociology of Women Credits: 3	GWSS 460 - Coming Out and Sexual Identity Credits: 3 GWSS 500 - Topics in Gender, Women, and Sexuality Studies Credits: 1-3 (Women of Color Feminism) GWSS 580 - Women and Religion Credits: 3 GWSS 585 - Women and Islam Credits: 3 GWSS 700 - Advanced Topics in Gender, Women, and Sexuality Studies Credits: 1-3 (Women of Color) GWSS 700 - Advanced Topics in Gender, Women, and Sexuality Studies Credits: 1-3 (Sexuality Studies) HIST 538 - Women in Sport Credits: 3 PHILO 150 - Introduction to Philosophy of Feminism Credits: 3 PHILO 331 - Philosophy of Gender Credits: 3 PHILO 590 - Topics in Philosophy Credits: 3 (Philosophy of Feminism) SOCIO 545 - The Sociology of Women Credits: 3
Social Change, Social Justice and Education DAS 355 - Introduction to Nonviolence Studies Credits: 3 DAS 590 - Applied Nonviolence Credits: 3 EDACE 750 - Women, Education, and Work Credits: 2-3 GWSS 105 - Introduction to Gender, Women, and Sexuality Studies Credits: 3 GWSS 380 - Women and Global Social Change Credits: 3 GWSS 480 - Seminar in Gender, Environment and Justice Credits: 3 GWSS 500 - Topics in Gender, Women, and Sexuality Studies Credits: 1-3 (African Feminisms) GWSS 605 - Social Change: Field-Experience Credits: 3 GWSS 700 - Advanced Topics in Gender, Women, and Sexuality Studies Credits: 1-3	*Social Change, Social Justice and Education* DAS 355 - Introduction to Nonviolence Studies Credits: 3 DAS 590 - Applied Nonviolence Credits: 3 EDACE 750 - Women, Education, and Work Credits: 2-3 GWSS 105 - Introduction to Gender, Women, and Sexuality Studies Credits: 3 GWSS 380 - Women and Global Social Change Credits: 3 GWSS 480 - Seminar in Gender, Environment and Justice Credits: 3 GWSS 500 - Topics in Gender, Women, and Sexuality Studies Credits: 1-3 (African Feminisms) GWSS 605 - Social Change: Field-Experience Credits: 3 GWSS 700 - Advanced Topics in Gender,

(Transnational Feminism) HIST 540 - Women in America, 1600 to the Civil War Credits: 3 HIST 542 - Women in America, Civil War to the Present Credits: 3 HIST 598 - Topics in Non-Western History Credits: 1-3 (Women, Gender, and Islam) LEAD 430 - Women and Leadership Credits: 3 SOCIO 510 - Social Welfare as a Social Institution Credits: 3 SOCIO 633 - Gender, Power, and International Development Credits: 3 SOCWK 510 - Social Welfare as a Social Institution Credits: 3 *Arts and Representations* AMETH 353 - Latina/o Perspectives Credits: 3 (Transborder Children's Literature) AMETH 353 - Latina/o Perspectives Credits: 3 (Art and Activism) AMETH 560 - Topics in American Ethnic Studies Credits: 1-4 (Race, Sex, and Science Fiction) AMETH 560 - Topics in American Ethnic Studies Credits: 1-4 (Hollywood Latina Images) ANTH 528 - Topics in Linguistic Anthropology Credits: 1-4 (Language and Gender) CLSCS 502 - Topics in Classical Studies Credits: 3 (Real Men Play Naked) ENGL 285 - Introduction to American Ethnic Literatures Credits: 3 (African American Women Writers) ENGL 386 - African American Literatures Credits: 3 ENGL 387 - American Indian Literatures Credits: 3 ENGL 388 - Asian American	Women, and Sexuality Studies Credits: 1-3 (Transnational Feminism) HIST 540 - Women in America, 1600 to the Civil War Credits: 3 HIST 542 - Women in America, Civil War to the Present Credits: 3 HIST 598 - Topics in Non-Western History Credits: 1-3 (Women, Gender, and Islam) LEAD 430 - Women and Leadership Credits: 3 SOCIO 510 - Social Welfare as a Social Institution Credits: 3 SOCIO 633 - Gender, Power, and International Development Credits: 3 SOCWK 510 - Social Welfare as a Social Institution Credits: 3 *Arts and Representations* AMETH 353 - Latina/o Perspectives Credits: 3 (Transborder Children's Literature) AMETH 353 - Latina/o Perspectives Credits: 3 (Art and Activism) AMETH 560 - Topics in American Ethnic Studies Credits: 1-4 (Race, Sex, and Science Fiction) AMETH 560 - Topics in American Ethnic Studies Credits: 1-4 (Hollywood Latina Images) ANTH 528 - Topics in Linguistic Anthropology Credits: 1-4 (Language and Gender) CLSCS 502 - Topics in Classical Studies Credits: 3 (Real Men Play Naked) ENGL 285 - Introduction to American Ethnic Literatures Credits: 3 (African American Women Writers) ENGL 386 - African American Literatures Credits: 3 ENGL 387 - American Indian Literatures Credits: 3 ENGL 388 - Asian American

Literatures Credits: 3	Literatures Credits: 3
ENGL 389 - Latina/o Literatures Credits: 3	ENGL 389 - Latina/o Literatures Credits: 3
ENGL 395 - Topics in English Credits: 1-3 (Shakespeare: Comedy, Gender, and Performance)	ENGL 395 - Topics in English Credits: 1-3 (Shakespeare: Comedy, Gender, and Performance)
ENGL 420 - Topics in Film Credits: 3 (Violence and War)	ENGL 420 - Topics in Film Credits: 3 (Violence and War)
ENGL 420 - Topics in Film Credits: 3 (Gender in Horror)	ENGL 420 - Topics in Film Credits: 3 (Gender in Horror)
ENGL 450 - Literature and Society Credits: 3 (Women in TV)	ENGL 450 - Literature and Society Credits: 3 (Women in TV)
ENGL 485 - Topics in Rhetoric and Literacy Credits: 3 (Girl Talk: Women's Words that Rock(ed) the World)	ENGL 485 - Topics in Rhetoric and Literacy Credits: 3 (Girl Talk: Women's Words that Rock(ed) the World)
ENGL 525 - Women in Literature Credits: 3	ENGL 525 - Women in Literature Credits: 3
ENGL 605 - Readings in Medieval Literature Credits: 3 (The Idea of Work in the Middle Ages)	ENGL 605 - Readings in Medieval Literature Credits: 3 (The Idea of Work in the Middle Ages, Medieval Others: Dragons, Damsels, and Death)
ENGL 625 - Readings in Eighteenth-Century British Literature Credits: 3 (Austen)	ENGL 625 - Readings in Eighteenth-Century British Literature Credits: 3 (Austen)
ENGL 625 - Readings in Eighteenth-Century British Literature Credits: 3 (Ghosts and Goths)	ENGL 625 - Readings in Eighteenth-Century British Literature Credits: 3 (Ghosts and Goths)
ENGL 635 - Readings in Twentieth-Century British Literature Credits: 3 (Bloomsbury Group)	ENGL 635 - Readings in Twentieth-Century British Literature Credits: 3 (Bloomsbury Group)
ENGL 650 - Readings in Twentieth-Century American Literature Credits: 3 (Queer Native Literatures)	ENGL 650 - Readings in Twentieth-Century American Literature Credits: 3 (Queer Native Literatures)
ENGL 655 - Readings in American Ethnic Literature Credits: 3 ("What is African American Literatue?")	ENGL 655 - Readings in American Ethnic Literature Credits: 3 ("What is African American Literatue?")
ENGL 655 - Readings in American Ethnic Literature Credits: 3 (Dream Acts: Immigration in Ethnic Literature)	ENGL 655 - Readings in American Ethnic Literature Credits: 3 (Dream Acts: Immigration in Ethnic Literature)
ENGL 660 - Readings in Major Authors Credits: 3 (American Gothic)	ENGL 660 - Readings in Major Authors Credits: 3 (American Gothic)
ENGL 660 - Readings in Major Authors Credits: 3 (The Brontes)	ENGL 660 - Readings in Major Authors Credits: 3 (The Brontes)
ENGL 660 - Readings in Major Authors Credits: 3 (George Eliot)	ENGL 660 - Readings in Major Authors Credits: 3 (George Eliot)
ENGL 660 - Readings in Major	ENGL 660 - Readings in Major

Authors Credits: 3 (Gender and Performance) ENGL 660 - Readings in Major Authors Credits: 3 (Erdrich and Alexie) ENGL 660 - Readings in Major Authors Credits: 3 (Austen and Her Legacy) ENGL 660 - Readings in Major Authors Credits: 3 (Louise Erdrich) ENGL 660 - Readings in Major Authors Credits: 3 (American Indian Literatures) ENGL 670 - Topics in British Literature Credits: 3 (Women in 18th Century Literature) ENGL 680 - Topics in American Literature Credits: 3 (Asian American Literature) ENGL 680 - Topics in American Literature Credits: 3 (Latina/o Literature) ENGL 680 - Topics in American Literature Credits: 3 (In the Shadows of American Literature) ENGL 680 - Topics in American Literature Credits: 3 (Two-Spirit Literatures) ENGL 695 - Topics in Literature Credits: 3 (African-American Children's Literature) ENGL 710 - Studies in a Literary Genre Credits: 3 (Gender & Sexuality in American Indian Literature) ENGL 710 - Studies in a Literary Genre Credits: 3 (Romances and Saints' Lives) ENGL 720 - Studies in a Major Author Credits: 3 (The Brontes) ENGL 720 - Studies in a Major Author Credits: 3 (Comedy and Gender) ENGL 720 - Studies in a Major Author Credits: 3 (Extreme Shakespeare) ENGL 720 - Studies in a Major Author Credits: 3 (Shakespeare) ENGL 725 - Studies in Children's/Young Adult Literature Credits: 3 (African	Authors Credits: 3 (Gender and Performance) ENGL 660 - Readings in Major Authors Credits: 3 (Erdrich and Alexie) ENGL 660 - Readings in Major Authors Credits: 3 (Austen and Her Legacy) ENGL 660 - Readings in Major Authors Credits: 3 (Louise Erdrich) ENGL 660 - Readings in Major Authors Credits: 3 (American Indian Literatures) ENGL 670 - Topics in British Literature Credits: 3 (Women in 18th Century Literature, 18th Century Women Writers, Downton Abbey in Context) ENGL 680 - Topics in American Literature Credits: 3 (Asian American Literature) ENGL 680 - Topics in American Literature Credits: 3 (Latina/o Literature) ENGL 680 - Topics in American Literature Credits: 3 (In the Shadows of American Literature) ENGL 680 - Topics in American Literature Credits: 3 (Two-Spirit Literatures) ENGL 695 - Topics in Literature Credits: 3 (African-American Children's Literature, Innocence and Experience, and Postcolonial Literature) ENGL 710 - Studies in a Literary Genre Credits: 3 (Gender & Sexuality in American Indian Literature, Romance and Saints' Lives, Black to the Future) ENGL 720 - Studies in a Major Author Credits: 3 (The Brontes) ENGL 720 - Studies in a Major Author Credits: 3 (Comedy and Gender) ENGL 720 - Studies in a Major Author Credits: 3 (Extreme Shakespeare) ENGL 720 - Studies in a Major Author Credits: 3 (Shakespeare) ENGL 725 - Studies in Children's/Young Adult Literature Credits: 3 (African American Children's Literature) ENGL 730 - Studies in a Literary

American Children's Literature) ENGL 730 - Studies in a Literary Period Credits: 3 (Classic Girls in a Modern Age) ENGL 730 - Studies in a Literary Period Credits: 3 (Alcott and Twain) ENGL 740 - Studies in Literary Theory Credits: 3 (African American Literary Theory) ENGL 755 - Studies in Composition and Rhetoric Credits: 3 (Power and Persuasion) GRMN 515 - Topics in German Cultural Studies Credits: 3 (Brothers Grimm and Beyond) GWSS 105 - Introduction to Gender, Women, and Sexuality Studies Credits: 3 GWSS 300 - Selected Studies of Gender, Women, and Sexuality Studies Credits: 3 (Queer Asians in the Midwest) GWSS 300 - Selected Studies of Gender, Women, and Sexuality Studies Credits: 3 (World Literature and Culture by Women) GWSS 350 - Gender in American Film Credits: 3 GWSS 450 - The Stories of a Young Girl Credits: 3 GWSS 500 - Topics in Gender, Women, and Sexuality Studies Credits: 1-3 (Gender in American Film) GWSS 500 - Topics in Gender, Women, and Sexuality Studies Credits) 1-3 (World Literature and Culture by Women) GWSS 550 - Women and Popular Culture Credits: 3 MC 612 - Gender, Class, Race, and the Media Credits: 3 MUSIC 311 - Women in Music Credits: 3 THTRE 782 - Women in Theatre Credits: 3 *Law and the Public Arena* AMETH 560 - Topics in American Ethnic	Period Credits: 3 (Classic Girls in a Modern Age) ENGL 730 - Studies in a Literary Period Credits: 3 (Alcott and Twain) ENGL 740 - Studies in Literary Theory Credits: 3 (African American Literary Theory) ENGL 755 - Studies in Composition and Rhetoric Credits: 3 (Power and Persuasion) GRMN 515 - Topics in German Cultural Studies Credits: 3 (Brothers Grimm and Beyond) GRMN 701 Judaism in Germany Credits: 3 GWSS 105 - Introduction to Gender, Women, and Sexuality Studies Credits: 3 GWSS 300 - Selected Studies of Gender, Women, and Sexuality Studies Credits: 3 (Queer Asians in the Midwest) GWSS 300 - Selected Studies of Gender, Women, and Sexuality Studies Credits: 3 (World Literature and Culture by Women) GWSS 350 - Gender in American Film Credits: 3 GWSS 450 - The Stories of a Young Girl Credits: 3 GWSS 500 - Topics in Gender, Women, and Sexuality Studies Credits: 1-3 (Gender in American Film) GWSS 500 - Topics in Gender, Women, and Sexuality Studies Credits) 1-3 (World Literature and Culture by Women) GWSS 550 - Women and Popular Culture Credits: 3 MC 612 - Gender, Class, Race, and the Media Credits: 3 MUSIC 311 - Women in Music Credits: 3 THTRE 782 - Women in Theatre Credits: 3 *Law and the Public Arena* AMETH 560 - Topics in American Ethnic Studies Credits: 1-4 (Intersections of Crime) COMM 420 - Gender Communication Credits: 3

Studies Credits: 1-4 (Intersections of Crime)

COMM 420 - Gender Communication Credits: 3

COMM 630 - Special Topics in Rhetoric and Communication Credits: 3 (Gender and Communication)

GWSS 105 - Introduction to Gender, Women, and Sexuality Studies Credits: 3

GWSS 560 - Women and Violence Credits: 3

HIST 551 - History of Family Violence Credits: 3

POLSC 606 - Gender and Politics Credits: 3

SOCIO 635 - Sociology of Human Trafficking Credits: 3

SOCIO 665 - Women and Crime Credits: 3

SOCIO 670 - Diversity and Social Interaction in the Workplace Credits: 3

Health, Science, and Technology

GWSS 105 - Introduction to Gender, Women, and Sexuality Studies Credits: 3

GWSS 345 - Women & Aging: Looking at Multicultural Female Aging Through a Gendered Lens Credits: 3

PSYCH 540 - Psychology of Women Credits: 3

PSYCH 563 - Gender Issues in the Workplace Credits: 3

Varies by Topic

Check with department to ascertain cluster.

GWSS 105 - Introduction to Gender, Women, and Sexuality Studies Credits: 3 (counts for any cluster)

GWSS 300 - Selected Studies of Gender, Women, and Sexuality Studies Credits: 3

GWSS 499 - Honors Project Credits: 3

GWSS 500 - Topics in Gender, Women, and Sexuality Studies Credits: 1-3

COMM 630 - Special Topics in Rhetoric and Communication Credits: 3 (Gender and Communication)

GWSS 105 - Introduction to Gender, Women, and Sexuality Studies Credits: 3

GWSS 560 - Women and Violence Credits: 3

HIST 551 - History of Family Violence Credits: 3

POLSC 606 - Gender and Politics Credits: 3

SOCIO 635 - Sociology of Human Trafficking Credits: 3

SOCIO 665 - Women and Crime Credits: 3

SOCIO 670 - Diversity and Social Interaction in the Workplace Credits: 3

Health, Science, and Technology

GWSS 105 - Introduction to Gender, Women, and Sexuality Studies Credits: 3

GWSS 345 - Women & Aging: Looking at Multicultural Female Aging Through a Gendered Lens Credits: 3

PSYCH 540 - Psychology of Women Credits: 3

PSYCH 563 - Gender Issues in the Workplace Credits: 3

Varies by Topic

Check with department to ascertain cluster.

GWSS 105 - Introduction to Gender, Women, and Sexuality Studies Credits: 3 (counts for any cluster)

GWSS 300 - Selected Studies of Gender, Women, and Sexuality Studies Credits: 3

GWSS 499 - Honors Project Credits: 3

GWSS 500 - Topics in Gender, Women, and Sexuality Studies Credits: 1-3

GWSS 505 - Independent Study in Gender, Women, and Sexuality Studies Credits: 1-3

GWSS 700 - Advanced Topics in Gender, Women, and Sexuality Studies Credits: 1-3

GWSS 784 - Internship in Gender, Women, and

GWSS 505 - Independent Study in Gender, Women, and Sexuality Studies Credits: 1-3 GWSS 700 - Advanced Topics in Gender, Women, and Sexuality Studies Credits: 1-3 GWSS 784 - Internship in Gender, Women, and Sexuality Studies Credits: 1-12 GWSS 799 - Independent Study for Graduate Students or Advanced Undergraduate Students Credits: 1-3	Sexuality Studies Credits: 1-12 GWSS 799 - Independent Study for Graduate Students or Advanced Undergraduate Students Credits: 1-3

Rationale: Faculty voted to approve the addition of, ENGL 605, ENGL 670, ENGL 695, ENGL710, and GRMN 701, submitted by the faculty members who teach the courses.

Impact (i.e. if this impacts another unit) – Statement should include the date when the head of a unit was contacted, and the response or lack of: Department Head of English has been contacted and expresses her support. Department Head of Modern Languages, Derek Hillard has been contacted.

Statistics

MS in Statistics: Add Data Science and Analytics Track

Master's degree requirements	Master's degree requirements
All master students should have a background in mathematics at least at the level of calculus, along with prior knowledge of matrix or linear algebra. Two master's degree options are available: the master's report option and the non-report option. • For the master's report option, the student must take 30 hours of coursework and write a report for 2 additional hours of credit in Stat 898. • For the non-report option, the student must take 36 hours of coursework and pass a comprehensive exam. • Students must select either the report option or the non-report option by the	The Master of Science degree program offers two tracks: a Mathematical Statistics track, and a Data Science and Analytics track. All MS students should have a background in mathematics at least at the level of calculus, along with prior knowledge of matrix or linear algebra. The Data Science and Analytics track requires proficiency of STAT 510 and STAT 511 or equivalent, and at least 3 credit hours of a programming language course that uses C, C++, Fortran, R or Python, for admission. Students without the background of STAT 510 and STAT 511 prior to admission are required to take extra credits to fulfill the requirement. Two MS degree completion options are

first week of the fall semester of their second year in the MS program. At this time, the student is required to file a program of study. Students that do not file a program of study that specifies an explicit choice of degree option in a timely manner will be automatically assigned to the non-report option. Students are not allowed to switch between report versus non-report options after filing the program of study unless the switch is approved by the Graduate Program Committee. • Students that are interested in pursuing the report option should contact potential faculty advisors by the end of their first year in the MS program in order to allow time to identify a suitable project. • For both the Report Option and the Non-Report option: Students must be enrolled in at least one hour the semester in which they plan to complete the final examination or defend their report and graduate. In addition, international students should check with International Student and Scholar Services to be certain of the enrollment required. In either case, the course work must include: • STAT 713 - Applied Linear Statistical Models **Credits:** 3 • Either STAT 720 - Design of Experiments **Credits:** 3 • or STAT 722 - Experimental Design for Product Development and Quality Improvement **Credits:** 3 • STAT 770 - Theory of Statistics I **Credits:** 3 • STAT 771 - Theory of Statistics II **Credits:** 3 • STAT 860 - Linear Models I **Credits:** 3	available for each track: the MS report option and the non-report option. • For the MS report option, the student must take 30 hours of coursework and write a report for 2 additional hours of credit in Stat 898. • For the non-report option, the student must take 36 hours of coursework and pass a comprehensive exam for the Mathematical Statistics track, or complete a Capstone Project for the Data Science and Analytics track. • Students must select either the report option or the non-report option by the first week of the fall semester of their second year in the MS program. At this time, the student is required to file a program of study. Students that do not file a program of study that specifies an explicit choice of degree option in a timely manner will be automatically assigned to the non-report option. Students are not allowed to switch between the report/ non-report options after filing the program of study unless the switch is approved by the stusent's Graduate Program Committee. • Students that are interested in pursuing the report option should contact potential faculty advisors by the end of their first year in the MS program in order to allow time to identify a suitable project. • For both the Report Option and the Non-Report option: Students must be enrolled in at least one hour the semester in which they plan to complete the final examination or defend their report and graduate. In addition, international students should check with International Student and Scholar Services to be certain of the enrollment required. For the Mathematical Statistics track, the

Stat 945 (Statistical Consulting) is recommended for those students with applied interests.

Note:

- Students planning to pursue the PhD in Statistics at K-State are required to take Stat 720.
- Master's students wishing to continue for the PhD must apply for admission to that program. Students should meet with the Department Head regarding available funding.

M.S. Exam

Master's students in the non-report option will meet with the MS Exam committee near the beginning of the semester in which the student intends to take the MS Exam. The exam is offered twice each year, near the end of the fall and spring semesters. This committee will compose an exam based on material from Stat 770, 771, and 713. The format will be a written 3 hour exam. A decision of Pass/Fail will be made by a two thirds vote in the exam committee, in accordance with section J.3 of the Graduate School Handbook. In the event of a Fail, a second attempt may be requested by the student in accordance with Graduate School policies.

Students admitted to the Ph.D. program in statistics may, with approval of the MS Exam committee, use the Ph.D. Qualifying Exams to satisfy the exam requirement of the M.S. non-report option. A passing mark on at least one Ph.D. qualifying exam will be interpreted

course work must include:

- STAT 713 - Applied Linear Statistical Models **Credits:** 3
- Either STAT 720 - Design of Experiments **Credits:** 3
  or STAT 722 - Experimental Design for Product Development and Quality Improvement **Credits:** 3
- STAT 770 - Theory of Statistics I **Credits:** 3
- STAT 771 - Theory of Statistics II **Credits:** 3
- STAT 860 - Linear Models I **Credits:** 3
- STAT 861 - Linear Models II **Credits:** 3

Stat 945 (Statistical Consulting) is recommended for those students with applied interests.

For the Data Science and Analytics track, the course work must include:

- STAT 727 Statistical Computing/Numerical Methods of Statistics Credits: 3
- At least 3 credits from:
  STAT 760 Optimization for Data Science Credits 3
  STAT 761 Discrete Optimization and Scalability for Data Science Credits 3
- At least 6 credits from
  - STAT 713 - Applied Linear Statistical Models **Credits:** 3
  - STAT 717 - Categorical Data Analysis
  - Either STAT 720 - Design of Experiments **Credits:** 3, or STAT 722 - Experimental Design for Product Development and Quality Improvement **Credits:** 3

as a pass of the MS. Exam.	➢ STAT 730 - Multivariate Statistical Methods **Credits:** 3 ❖ At least 6 credits from ➢ STAT 764 - Applied Spatio-Temporal Statistics **Credits:** 3 ➢ STAT 766 - Applied Data Mining/Machine Learning and Predictive Analytics **Credits:** 3 ➢ STAT 768 - Applied Bayesian Modeling and Prediction **Credits:** 3 For both tracks, electives can be selected from Statistics courses at the 700 level and above, as well as from other departmental offerings, which requires approval by the department. Such approval is at the department's discretion. ***Note:*** • Students planning to pursue the PhD in Statistics at K-State are required to take Stat 720. • Master's students wishing to continue for the PhD must apply for admission to that program. Students should meet with the Department Head regarding available funding. ***MS Exam or Capstone Project*** Master's students in the non-report option in the Mathematical Statistics track will meet with the MS Exam committee near the beginning of the semester in which the student intends to take the MS Exam. The exam is offered twice each year, near the end of the fall and spring semesters. This committee will compose an exam based on material from Stat 770, 771, and 713. The format will be a written 3 hour exam. A decision of Pass/Fail will be made by a two thirds vote in the exam

	committee, in accordance with section J.3 of the Graduate School Handbook. In the event of a Fail, a second attempt may be requested by the student in accordance with Graduate School policies. Master's students in the non-report option in the Data Science and Analytics track will complete a capstone project, which can be conducted with industry, government, and academic partners, and which may result in the creation of a usable/public data product for real-world problems. Students admitted to the PhD program in statistics may, with approval of the MS Exam committee, use the PhD Qualifying Exams to satisfy the exam requirement of the MS non-report option. A passing mark on at least one PhD qualifying exam will be interpreted as a pass of the MS Exam.

Rationale: With the ubiquitous generation of complex and large-scale data, the need for data-driven decision tools is increasingly in high demand. Consequently, beyond traditional applied statistical methods, the discipline of Statistics nowadays requires deeper training in computational skills to develop and apply such needed tools. In addition to our current, more traditional Mathematical Statistics track, we are proposing an additional Data Science and Analytics track within our MS in Statistics program for necessary modernization of the program. The Data Science and Analytics track will prepare graduates to design and build solutions for data-driven decision-making in complex real-world problems. The new track will provide training in applied data mining / machine learning and predictive analytics skills required to analyze big data arising from high throughput equipment, business and public media sources, as well as training in applied spatio-temporal statistical methods and applied Bayesian modeling and prediction for complex, often massive, data arising in the natural and social sciences. The program will equip graduates with a solid knowledge of statistical and machine learning methods, optimization theory for data science, and cutting edge computational statistical modeling tools, providing the ability to identify, assess, and grasp the opportunities available through data-driven decision making in the context of complex and large-scale data. Students will learn automated data collection techniques, as well as how to build solutions for analysis of real-world data problems in classroom examples. The new curriculum will guide students with a balanced approach to modeling theory and practical skills that are in growing global demand for both the private and public sectors. Graduate electives for each track can be selected from courses in the other track to accommodate student interests and educational goals.

In the current budgetary environment it needs to be clear that the department can indeed offer the proposed track. In fact, we have offered the proposed 764, 766 & 768 courses in previous semesters under STAT 799 (Topics in Statistics) to gauge student interest and our ability to offer such. The courses were well received and each course is proposed to be offered in the new track once every two years, which is doable based on the preceding. Thus, there are actually just two new courses in the track, those being 760 & 761 (although versions of such material has been taught in our STAT 950 (Advanced Studies in Probability and Statistics)). STAT 760 would be offered in the spring of even years, while 761 would be offered during spring term of odd years, which is within the resources of the department and unanimously approved by the faculty as important additions to the curriculum within the track.

Impact (i.e. if this impacts another unit) – Statement should include the date when the head of a unit was contacted, and the response or lack of: No Impact outside college.

College of Education

Add: Leadership in Academic Advising (PhD)
New subplan under PhD in Counseling and Student Development

Offered through the Special Education, Counseling, and Student Affairs graduate program, the PhD in Counseling and Student Development with specialization in Leadership in Academic Advising requires a minimum of 90 hours post baccalaureate. The doctoral program prepares professionals for roles in leadership, research, and teaching focused on academic advising in higher education.

Doctoral Degree Requirements

A designated core of 18 hours of graduate credit is required. These courses may be part of a master's degree or must be completed in addition to the doctoral course work. These courses include the following:

- EDCEP 812 History and Philosophy of Higher Education **Credits:** 3
- EDCEP 816 Research Methods **Credits:** 3
- EDCEP 835 Foundations of Academic Advising **Credits:** 3
- EDCEP 838 Student Development Theory **Credits:** 3
- EDCEP 851 Multicultural Aspects of Academic Advising **Credits:** 3
  Or
  EDCEP 830 Diversity in Higher Education **Credits:** 3
- EDCEP 863 Trends in Career Development **Credits:** 3

1. Professional Courses (18 credit hours)

- EDCEP 923 Higher Education Law **Credits:** 3

- EDCEP 925 Higher Education Finance **Credits:** 3
- EDCEP 926 Enrollment Management in Higher Education **Credits:** 3
- EDCEP 927 Higher Education Administration **Credits:** 3
- EDCEP 948 Advanced Student Development Theory **Credits:** 3
- EDLEA 828 Scholarly Orientation to Graduate Studies **Credits:** 3

2. Academic Advising Professional Courses (9 credit hours)

- EDCEP 930 Approaches to Academic Advising: Linking Theory, Research, and Practice **Credits:** 3
- EDCEP 932 Ethical Issues and Practice in Academic Advising **Credits:** 3
- EDCEP 937 Administration of Academic Advising **Credits:** 3

3. Research Courses (15 credit hours)

- EDLEA 838 Qualitative Research in Education **Credits:** 3
- EDLEA 938 Advanced Data Analysis in Qualitative Methods **Credits:** 3
- EDCEP 817 Statistical Methods in Education **Credits:** 3
- EDCEP 917 Experimental Design in Educational Research **Credits:** 3
- EDCEP 934 Research in Academic Advising **Credits:** 3

4. Dissertation Research (18 credit hours)

Preliminary examination. Candidates much successfully complete an examination of areas of the program of study.

- EDCEP 999 Research in Counseling and Educational Psychology **Credits:** 1-18

10/23/17 Department Meeting

Rationale: This subplan of the doctoral program, Leadership in Academic Advising, evolved out of the Graduate Certificate, initiated in 2003, and the MS in Academic Advising which had its first graduates in Summer 2008. In recent years there has been significant interest in such a doctoral program and support from NACADA: The Global Community for Academic Advising. Our MS in Academic Advising is the premier program in the country and has had graduates since its inception. Also, it is important for our department and the College of Education to position ourselves as leaders in research related to Academic Advising. This is supported by the recently established NACADA Center for Research at Kansas State University.

Projected first term offered: Fall 2018

College of Education

Changes to EdD in Curriculum and Instruction

Ed.D. in Curriculum & Instruction 94 credit hours The Doctor of Education (Ed.D.) in Curriculum and Instruction 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. Area of Emphasis (48 hours)**	**Ed.D. in Curriculum & Instruction** 94 credit hours The Doctor of Education (Ed.D.) in Curriculum and Instruction 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. **Prerequisite** An introductory survey to research methods and methodologies in the social sciences. The course may be included on the Program of Study. **Possible courses**: EDCEP 816 Research Methods in Education or a course approved by the supervisory committee. **A. Area of Emphasis (48 hours)** (1)*Summer Internships* (6 hours) EDCI 900 Summer Seminar, Year 1 Introduction to Clinical Experience EDCI 901 Summer Seminar, Year 2 Clinical Experiences Two summer in residence (on campus) internships are required for program completion. (2)*Analysis and Interpretation of Educational Research: A Theory Course* (3 hours) Possible course includes: EDCI 907 Curriculum Theory Or, a Theory Course approved by the supervisory committee. (3)*Courses with EDCI prefix* (12 hours) A minimum of 12 credit hours of the post-

	master's credits on the Ed.D. Program of Study must designate the EDCI prefix at the 800 or 900 course level. Research credits (EDCI 999) and internship credits (EDCI 991) may not be applied to the 12 credit hour minimum. (4) *Courses in the major and minor area* (27 hours)
B. Foundational Knowledge (12 hours) ~~For each category, take the course listed or its equivalent.~~ ~~*(1) Historical and Philosophical Analysis of Educational Ideas and Practice*~~ ~~EDCI 812 History of American Education, or~~ ~~EDCI 813 Philosophy of American Education~~ ~~*(2) Techniques and Interpretation of Educational Research*~~ ~~EDCEP 816 Research Methods in Educ~~ ~~*(3) Social Science Explanations of Educating a Diverse Society*~~ ~~EDCI 910 Multicultural Curriculum Programming~~ ~~*(4) Behavioral Bases of Educational Thought and Practice*~~ ~~EDCEP 912 Psychological Bases of Educational Thought and Practice~~	**B. Foundational Knowledge (12 hours)** Possible courses for 1-4 below include: (1) *History and Philosophy of Educational Ideas and Practice* (3 hours) EDCI 812 History of American Education or EDCI 813 Philosophy of American Education (2) *Education in a Diverse Society* (3 hours) EDCI 864 Social/Cultural Issues in Educational Technology (3) *Supporting Positive Change through Educational Technology* (3 hours) EDCI 866 Educational Technology Change Management (4) Curriculum (3 hours) EDCI 831 Contemporary Issues in Teaching and Learning EDCI 882 Teaching and Learning Models (5) ELD Track (9 hours; applies to EFL track only; all 9 hours of EFL courses listed are required for EFL track)) EDCI845 ELDDual Language Methods EDCI846 ELD Dual Language Culture & Language in Classroom Practice EDCI847 ELD/Dual Language Assessment Or, Foundational Knowledge courses approved by the supervisory committee.
C. Research Courses ~~(6 hours)~~ ~~Research courses concerning methodology consistent with that required for the dissertation.~~ ~~Two courses typically used to meet research expectations include:~~	**C. Research Courses (12 hours)** Research courses addressing methodology consistent with that required for the dissertation and approved by the supervisory committee.

~~EDCEP 817 Statistical Methods in Education~~ ~~EDCEP 917 Experimental Design in Educational Research~~	Possible courses include: EDCEP 817 Statistical Methods in Education EDCEP 819 Survey Research EDCEP 917 Experimental Design in Educational Research EDLEA 838 Qualitative Research in Education Or, Research Courses approved by the supervisory committee.
D. Clinical Experience (12 hours) ~~EDCI 991 Internship in Curriculum and Instruction~~ ~~Objectives, activities, and outcomes for this clinical experience/internship are commonly determined by the major professor (advisor), in consultation with the student.~~	**D. Clinical Experience (12 hours)** EDCI 991 Internship I in Curriculum & Instruction, Fall Year 1 EDCI 991 Internship II in Curriculum & Instruction, Spring Year 1 EDCI 991 Internship III in Curriculum & Instruction, Fall Year 2 EDCI 991 Internship IV in Curriculum & Instruction, Spring Year 2
E. Doctoral Research (16 hours) EDCI 999 Doctoral Research	**E. Doctoral Research (16 hours)** EDCI 999 Doctoral Research
Preliminary examination ~~Satisfactory completion of all segments of a monitored, written examination of at least 12 hours over all areas of the program of study, 3 of which must be over the foundation courses.~~	**Preliminary examination** Satisfactory completion of all segments of a written examination of at last 12 hours over all areas of the program of study.
Dissertation research (16 credit hours) Completion of a dissertation which treats an important topic of professional education practice using a systematic methodology consistent with accepted research paradigms; the dissertation must be successfully defended in a public, oral defense - EDCI 999 - Research in Curriculum and Instruction **Credits:** ~~(1-18)~~	**Dissertation research (16 hours)** Completion of a dissertation, which treats an important topic of professional educational practice using a systematic methodology consistent with accepted research paradigms. The dissertation must be successfully defended in a public, oral defense. EDCI 999 Research in Curriculum & Instruction Credits (16)
Admission Requirements Admission to graduate study is granted by the Dean of the Graduate School upon the recommendation of the faculty in the graduate program. Applicants seeking	***Admission Requirements*** Admission to graduate study is granted by the Dean of the Graduate School upon the recommendation of the faculty in the graduate program. Applicants seeking

admission to this degree program must submit the information noted below. Before starting the online application, gather all information and documents for all of the admission requirements so that they can be uploaded into the application system. **All materials must be received before review will begin.**	admission to this degree program must submit the information noted below. Before starting the online application, gather all information and documents for all of the admission requirements so that they can be uploaded into the application system. **All materials must be received before review will begin.**
Completed Online Graduate School Application. (Follow the prompts for completing the application process.) **Application Deadlines** The Graduate School application and all additional documentation must be received by the following deadline dates for admission in a particular semester **Domestic Students:** **March 1** for fall (August) enrollment **October 1** for spring (January) enrollment **February 1** for summer (June) enrollment **International Students:** **January 1** for fall (August) enrollment **August 1** for spring (January) enrollment **December 1** for summer (June) enrollment **Graduate School Application Fee** **Domestic Students:** A $65 application fee is required for all domestic students; the application will not be processed without this fee. The fee can be paid by credit card when completing the online application. **International Students:** A $75 application fee is required; the application will not be processed without this fee. The fee can be paid by credit card when completing the online application.	**Completed Online Graduate School Application**. (Follow the prompts for completing the application process.) **Application Deadlines** The Graduate School application and all additional documentation must be received by the following deadline dates for admission in a particular semester **Domestic Students:** **March 1** for fall (August) enrollment **October 1** for spring (January) enrollment **February 1** for summer (June) enrollment **International Students:** **January 1** for fall (August) enrollment **August 1** for spring (January) enrollment **December 1** for summer (June) enrollment **Graduate School Application Fee** **Domestic Students:** A $65 application fee is required for all domestic students; the application will not be processed without this fee. The fee can be paid by credit card when completing the online application. **International Students:** A $75 application fee is required; the application will not be processed without this fee. The fee can be paid by credit card when completing the online application.
Official Transcripts You must upload into the online application system a scanned copy (PDF preferred) of the official transcript(s) from each college or university where you received your	**Official Transcripts** You must upload into the online application system a scanned copy (PDF preferred) of the official transcript(s) from each college or university where you

bachelor's degree(s) and completed any post-baccalaureate course work or degrees. Transcripts become part of your records at Kansas State University and cannot be returned. Please be aware that printouts from university student portals are not considered a copy of your official transcript. If you are admitted, you will be required to submit an official transcript for GPA and degree conferral verification from the institution(s) where you received your degree(s) and completed any post-baccalaureate credits. Students whose transcripts are not in English must furnish a translation by an appropriate authority. Failure to list any colleges or universities attended may result in dismissal from the university.	received your bachelor's degree(s) and completed any post-baccalaureate course work or degrees. Transcripts become part of your records at Kansas State University and cannot be returned. Please be aware that printouts from university student portals are not considered a copy of your official transcript. If you are admitted, you will be required to submit an official transcript for GPA and degree conferral verification from the institution(s) where you received your degree(s) and completed any post-baccalaureate credits. Students whose transcripts are not in English must furnish a translation by an appropriate authority. Failure to list any colleges or universities attended may result in dismissal from the university.
Statement of Goals and Professional Experience You must upload into the online application system a 1-2 page statement that includes the following information: Career and professional goals and aspirations, and how being accepted to the program will benefit your goals and aspirations; Your intended area of emphasis in the program; Any research interests; A description of your work experience within education or a related field (e.g., past and present employment); Future professional plans (e.g., Upon completion of the degree, do you plan to stay in your current position? If not, what type of position would you like to seek?); Do you plan to complete classes as a part-time or full-time student? If a full-time student, do you intend to seek a graduate assistantship? Which semester would you begin?; and If you have a request for a certain advisor, indicate that preference in the statement.	**Statement of Goals and Professional Experience** You must upload into the online application system a 1-2 page statement that includes the following information: Career and professional goals and aspirations, and how being accepted to the program will benefit your goals and aspirations; Your intended area of emphasis in the program; Any research interests; A description of your work experience within education or a related field (e.g., past and present employment); Future professional plans (e.g., Upon completion of the degree, do you plan to stay in your current position? If not, what type of position would you like to seek?); Do you plan to complete classes as a part-time or full-time student? If a full-time student, do you intend to seek a graduate assistantship? Which semester would you begin?; and If you have a request for a certain advisor, indicate that preference in the

~~**Graduate Record Exam (GRE) Test Scores**~~ ~~Each applicant must submit scores taken within the past five years on the GRE. Priority for admission is given to applicants with scores at the 50th percentile or higher on each part of the GRE.~~ ~~The GRE has three parts: verbal reasoning, quantitative reasoning, and analytical writing. Applicants are strongly encouraged to go to the GRE website to become familiar with the three exams, identify ways to prepare for the exam, and to register to take the exam.~~ ~~When registering for the GRE, you will be asked to record codes for where you want your scores sent and for the field of study of your intended graduate program. Use the following codes on the GRE registration form when applying to this degree program:~~ ~~**Institutional code for Kansas State University: 6334**~~ ~~**Field of Study: Curriculum and Instruction 3101**~~	statement. **Documentation of Valid K-12 Teaching License and Teaching Experience** With the submission of the application, the candidate is required to submit documentation of a valid K-12 Teaching License as well as signed evidence from a school administrator of three (3) years teaching experience and current employment in a K-12 setting.
Letters of Recommendation Three letters of recommendation are needed from college or university educators and/or colleagues or supervisors who are qualified to address your professional skills and your potential for success in the graduate program. Enter the names and email addresses of the recommenders into the appropriate area in the online application. **Resume** You must upload into the online application a professional resume that includes previous academic degrees, past and present employment, other professional activities and roles, and other pertinent information. **Writing Sample**	**Letters of Recommendation** Three letters of recommendation are needed from college or university educators and/or colleagues or supervisors who are qualified to address your professional skills and your potential for success in the graduate program. Enter the names and email addresses of the recommenders into the appropriate area in the online application. **Resume** You must upload into the online application a professional resume that includes previous academic degrees, past and present employment, other professional activities and roles, and other pertinent information. **Writing Sample**

You must upload into the online application a writing sample that is original and independently written in English. A writing sample may be a research or practice paper written for a previous graduate course, a published article, or other writing for an academic audience (no more than 20 pages). **Interview** An interview with faculty members in the area of emphasis may be requested before an admission decision is made. **English Language Proficiency** To demonstrate competence in the English language, an official report of scores not more than 18 months old (see the Graduate School website for dates) on the Test of English as a Foreign Language (TOEFL), International English Language Testing System – academic exam (IELTS) or Pearson Test of English (PTE) must be sent to Kansas State University for all applicants whose primary language is not English. Enter your scores in the online application and upload the report of your scores. Learn more about English proficiency requirements **International applicants** must meet the same academic standards for admission as those required of domestic students. When applying for admission, international applicants must provide an **Affidavit of Financial Support** and documentation of **English language proficiency**. Detailed information about these issues is provided at the Graduate School's International Students web page. Graduate Catalog Description URL: http://catalog.k-state.edu/preview_program.php?catoid=2&poid=258&returnto=124	You must upload into the online application a writing sample that is original and independently written in English. A writing sample may be a research or practice paper written for a previous graduate course, a published article, or other writing for an academic audience (no more than 20 pages). **Interview** An interview with faculty members in the area of emphasis may be requested before an admission decision is made. **English Language Proficiency** To demonstrate competence in the English language, an official report of scores not more than 18 months old (see the Graduate School website for dates) on the Test of English as a Foreign Language (TOEFL), International English Language Testing System – academic exam (IELTS) or Pearson Test of English (PTE) must be sent to Kansas State University for all applicants whose primary language is not English. Enter your scores in the online application and upload the report of your scores. Learn more about English proficiency requirements **International applicants** must meet the same academic standards for admission as those required of domestic students. When applying for admission, international applicants must provide an **Affidavit of Financial Support** and documentation of **English language proficiency**. Detailed information about these issues is provided at the Graduate School's International Students web page. Graduate Catalog Description URL: http://catalog.k-state.edu/preview_program.php?catoid=2&poid=258&returnto=124

Rationale: The Department of Curriculum and Instruction seeks to revise its Ed.D. program to offer online through Global Campus. Students will complete the program as a cohort. Two on campus summer sessions are required for program completion.

Impact (i.e. if this impacts another unit) – Statement should include the date when the head of a unit was contacted, and the response or lack of:
The only K-State unit impacted by this proposal outside of the Department of Curriculum and Instruction would be K-State Global Campus, since the courses constituting this doctoral degree program are offered through them via an online delivery format.

College of Technology & Aviation

Aeronautical Technology BS–Professional Pilot Option

Current Aeronautical Technology – Professional Pilot (BATN-PP) 124 Credit Hours			Proposed Aeronautical Technology - Professional Pilot (BATN-PP) 120 Credit Hours		
Fall 1st Semester (~~17~~ Credit hours)			**Fall 1st Semester** (14 Credit hours)		
AVT 100	Introduction to Aviation	3	AVT 100	Introduction to Aviation	3
ENGL 100	Expository Writing I	3	ENGL 100	Expository Writing I	3
MATH 100	College Algebra	3	MATH 100	College Algebra	3
PPIL 111	Private Pilot	4	PPIL 111	Private Pilot	4
PPIL 113	Private Pilot Flight Lab	1	PPIL 113	Private Pilot Flight Lab	1
	~~Computer Elective~~	~~3~~			
Spring 2nd Semester (16 Credit hours)			**Spring 2nd Semester** (16 Credit hours)		
AVT 242	Aviation Meteorology	3	AVT 242	Aviation Meteorology	3
COMM 106	Public Speaking I	3	COMM 106	Public Speaking I	3
MATH 150	Plane Trigonometry	3	MATH 150	Plane Trigonometry	3
PPIL 112	Professional Instrument Pilot	3	PPIL 112	Professional Instrument Pilot	3
PPIL 114	Professional Instrument Pilot Flight Lab	1	PPIL 114	Professional Instrument Pilot Flight Lab	1
PSYCH 110	General Psychology	3	PSYCH 110	General Psychology	3
Fall 3rd Semester (15 Credit hours)			**Fall 3rd Semester** (15 Credit hours)		
ENGL 200	Expository Writing II	3	ENGL 200	Expository Writing II	3
~~MATH 205~~	~~General Calculus and Linear Algebra~~	~~3~~	PHYS 113	General Physics I	4
PHYS 113	General Physics I	4	PPIL 210	Aviation Safety	3
PPIL 211	Professional Commercial Pilot	3	PPIL 211	Professional Commercial Pilot	3
PPIL 212	Professional Instrument Pilot Flight Lab I	2	PPIL 212	Professional Instrument Pilot Flight Lab I	2
Spring 4th Semester (17 Credit hours)			**Spring 4th Semester** (17 Credit hours)		
AVT 340	Human Factors in Aviation	3	AVT 340	Human Factors in Aviation	3
AVT 386	Aerodynamics	3	AVT 386	Aerodynamics	3
ENGL 302	Technical Writing	3	ENGL 302	Technical Writing	3
~~PPIL 210~~	~~Aviation Safety~~	~~3~~	PPIL 213	Professional Commercial Pilot Flight Lab II	2
PPIL 213	Professional Commercial Pilot Flight Lab II	2		Computer Elective	3
	Economics Elective	3		Economics Elective	3
Fall 5th Semester (15 Credit hours)			**Fall 5th Semester** (15 Credit hours)		
PPIL 312	Certified Flight Instructor Ground School	6	PPIL 312	Certified Flight Instructor Ground School	6
PPIL 325	Advanced Aircraft Systems	3	PPIL 325	Advanced Aircraft Systems	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	Natural Science Elective	3		Natural Science Elective	3
Spring 6th Semester (14 Credit hours)			**Spring 6th Semester** (14 Credit hours)		
BUS 315	Supervisory Management	3	BUS 315	Supervisory Management	3
PHILO 390	Business Ethics	3	PHILO 390	Business Ethics	3
PPIL 262	Multi-Engine Ground School	1	PPIL 262	Multi-Engine Ground School	1
PPIL 263	Multi-Engine Flight Lab	1	PPIL 263	Multi-Engine Flight Lab	1
	Aviation Elective	3		Aviation Elective	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
Fall 7th Semester (~~15~~ Credit hours)			**Fall 7th Semester** (14 Credit hours)		
MKTG 400	Introduction to Marketing	3	MKTG 400	Introduction to Marketing	3
PPIL 387	Crew Resource Management I	3	PPIL 387	Crew Resource Management I	3
STAT 325	Introduction to Statistics	3	STAT 325	Introduction to Statistics	3
	Aviation Elective*	3		Aviation Elective*	3
	Aviation Elective*	~~3~~		Aviation Elective*	2
Spring 8th Semester (15 Credit hours)			**Spring 8th Semester** (15 Credit hours)		
AVT 440	Air Carrier Operations	3	AVT 440	Air Carrier Operations	3
AVT 445	Aviation Law	3	AVT 445	Aviation Law	3
	Aviation Elective	3		Aviation Elective	3

Humanities/Social Science/Business Elective.....3 ***Culminating Experience ~~(choose one of the following)~~:*** AVT 497 Senior ~~Project~~ .....3 ~~PPIL 416 Crew Resource Management II.....3~~ *Marked electives must be upper division courses, 300 and above.	Humanities/Social Science/Business Elective .....3 ***Culminating Experience:*** AVT 497 Senior <u>Capstone</u>.....3 *Marked electives must be upper division courses, 300 and above.

Rationale: In response to KBOR's request to reduce degrees to 120 hrs, we are proposing the attached curriculum. We considered the requirements from our accrediting body (AABI), the requirements for the Reduced Airline Transport Pilot Rating (FAR61.160), reviewed what our peer institutions are doing, and surveyed former students who have been in industry for some time. In summary, we are proposing:

- Eliminate MATH 205 - 3hrs
- Eliminate 1 hr Aviation Elective

We feel the proposed curriculum will still allow us to mentor quality aviation professionals.

Impact (i.e. if this impacts another unit) – Statement should include the date when the head of a unit was contacted, and the response or lack of: This will impact the math and science unit. The math and science matrix representative for the Professional Pilot option was notified who then discussed with the math and science unit. The representative met with the Professional Pilot matrix when a vote was taken.

Projected term: Fall 2018

College of Technology & Aviation

New Graduate Certificate Program:
Unmanned Aircraft Systems – Information Assurance

INTRODUCTION

This is a proposal for a Graduate Certificate program (GCP) in **Unmanned Aircraft Systems – Information Assurance (UAS-IA)** commencing spring 2018. The program, which will be housed in the College of Technology and Aviation, will complement existing undergraduate and graduate programs in the College of Technology and Aviation. The **UAS-IA** discipline and certificate ties in well with the Mission of the UAS study at the university. The certificate program has one concentration - Information Assurance. Information Assurance (in the context of Cyber conflict) is defined in this document as "the broad *tree* of investigation and practice devoted to Cybercrimes, Computer Forensics, Information Assurance, Information Security (INFOSEC), Communications Security (COMSEC), and especially Cyber Counter Intelligence (CCI)." (Nichols, September 5, 2008) Cyber Counter Intelligence indicates the involvement of computer-based sensitive information, or information operations for three distinct sciences operating in the cyber realm: Cyber Counter Sabotage (CCS), Cyber Counter Terrorism (CCT), and Cyber Counter Espionage (CCE). In this proposal, Information Assurance is limited to the prior three investigation areas. Computer *Forensics* is the discipline that combines elements of law and computer science to collect and analyze data from computer systems, networks, wireless communications, and storage devices in a way that is admissible as evidence in a court of law. (U.S. CERT 2005).

Professor Emeritus Randall K. Nichols, retired from Utica College in June, 2014 has contributed and advised in developing this certificate program. *Professor Nichols is certified as a Federal Expert Witness (Defense) in both Cryptography and Computer Forensics,* Department of Defense (DOD), Defense Threat Reduction Agency (DTRA) & Federal Bureau of Investigation (FBI), considers him a subject matter expert (SME) on Counter-Intelligence and Counter-Terrorism methodologies. As an advisor, he reviewed the program's student learning outcomes, courses and provided feedback and critique on the certificate program's courses, target audience and mode of delivery.

The primary emphasis of the graduate certificate program is to prepare the workforce to understand the protection of UASs from cyber-attacks by negligent and hostile means and teaching Information Assurance risk assessment principles to practitioners involved with UAS operations on land, sea, air, or satellite platforms. The impact of Loss of Signal (LOS) or intentional interference in UAS communications or navigation systems cannot be overstated. At the lowest end of the scale is the risk of a downed vehicle, mid-range risk is collision and failure to sense and avoid other vehicles or commercial / military traffic, and at the top of the risk scale is the hostile takeover of a payload to be used against US or US interests. It is not 'good enough" to operate, fly or support UASs, professionals must be concerned with protection of their charges.

I. STATEMENT OF EDUCATIONAL OBJECTIVES OF THE CERTIFICATE PROGRAM

The graduate certificate program in UAS- Information Assurance is designed to provide individuals, both working professionals and graduate students a strong educational foundation and career potential in an important industry that has very strong representation in our region and solid support from organizations all over the United States. Furthermore, the certificate program adds value to the Professional Master of Technology graduate program.

All courses in the UAS – Information Assurance certificate focus on knowledge and skills to understand UAS and issues related to UAS Information Assurance. If students desire to complete the Professional Master of Technology (PMT), College of Technology and Aviation, four courses from this certificate can be applied as electives.

STUDENT LEARNING OUTCOMES
The following are the learning outcomes for the program:

- Identify threats to critical information assets of UAS operations.
- Apply critical thinking and problem-solving skills to address current and future risks of UAS operations.
- Demonstrate communication skills at a professional level.
- Demonstrate an understanding of the applications of cyber technology to UAS field operations.
- Demonstrate an understanding of importance of privacy, legal and ethical issues of UAS operations information security.

ADMISSION
The Admissions requirement for the Graduate Certificate in UAS – Information Assurance requires a bachelor's degree with a cumulative GPA of 3.0 or higher. No deviations from standard admissions policy are required.

DELIVERY FORMAT
The program will be offered via K-State Online or face-to-face at K-State Polytechnic in eight-week segments in fall, spring, and summer semesters to meet the needs of both on-campus and off-campus learners. Courses are delivered using a course management system, primarily K-State Online, to provide an interactive, web-based classroom to students. A variety of technologies for instruction and communication will be used as appropriate for each class. The faculty envisions delivery to a national and regional audience, and thus flexibility is needed to adjust for occupational work demands and schedules.

PROGRAM LENGTH
The Graduate Certificate in UAS – Information Assurance may be completed in one year. Two courses each in the fall and spring semesters and one course in the summer semester.

II. CERTIFICATE PROGRAM COURSES

The proposed 15 hour Graduate Certificate in UAS – Information Assurance program consists of the following five new courses.

- **COT 680** Unmanned Aircraft Systems and Risk Analysis (3)
- **COT 682** Open Source Cyber Surveillance (3)
- **COT 684** Advanced Topics in Cyber Data Fusion (3)
- **COT 686** Risk Management for Unmanned Aircraft Systems Operators, Pilots, and Ground Personnel (3)
- **COT 688** Sense and Avoid Technologies in Unmanned Aircraft Systems (3)

The leadership and planning focus combined with the state-of-the-art techniques and practice complement existing graduate offerings of the College of Technology and Aviation and other graduate programs currently offered or being planned at the College. This presents opportunities for cooperative efforts between departments such as common core courses, interdepartmental listings, and joint initiatives, maximizing the use of existing resources.

Effective Date: Fall 2018

III. STATEMENT OF HOW THE COURSES ARE ASSOCIATED WITH THE CERTIFICATE

The focus of this new program will be on leadership, planning, and state-of-the-art practice for professionals in Unmanned Aircraft Systems/Unmanned Aerial Vehicle (UAS / UAV), and aviation concerned with protecting this advanced technology against Cyber Attacks or hostile/ intentional control of Command, Control, Communications, Computers, Intelligence, Reconnaissance and Surveillance (C4IRS) systems, or Loss Of Signal (LOS) to critical navigational components. This program applies to all UAS / UAV personnel preparing to act or working as pilots, operators, in communications, payload, navigation, ground support, satellite coordination with assets, or air-to-air delivery.

The Graduate Certificate program in Unmanned Aircraft Systems – Information Assurance will require five three credit hour courses for certification. Each course is required to reflect current knowledge and practice in terms of Information Assurance, Information Security (INFOSEC), Communications Security (COMSEC), and Risk Assessment (RA) as applied to both safe integration of UASs into the National Airspace (NAS) and deployment for global Counter Terrorism operations (CT).

All courses in the proposed certificate focus on knowledge and skills to understand UAS / UAV issues related to UAS Information Assurance. If students desire to complete a Professional Master in Technology (PMT), four courses from this certificate can be applied as electives.

IV. STATEMENT OF NEED

The outside interests from the intelligence and aviation communities became acute after the 2011 RQ-170 incident where Iran was credited with its capture. In addition, in 2014, Iran claimed the downing of an Israeli Hermes 450 Drone over Natanz. Reports like these cause major government concerns. They require better risk assessment and teaching active cyber defenses to protect UAS assets. Hence the initial graduate certificate program in UAS - S Information Assurance.

Budding cyber criminals and terrorists are involved in a huge number of crimes and terrorist activities. The impact of UAS Information Assurance losses are so valuable that they cannot be ignored by regulatory or intelligence agencies. The risks are real. The amount of federal and state money being appropriated at the problem is a good crystal ball for future jobs in the Information Assurance fields. Presidential support has been quite serious about spending federal dollars in support of cyber defense.

A huge portion of the initiative funds have been directed at the United State Air Force (USAF) Cyber Command and Homeland Security operations. A visit to Google using the search term Information Assurance Job Market brought up thousands of articles, existing jobs, and job announcements. According to experts interviewed, for the next 5-10 years, the Information Assurance and related cyber studies job market will be brisk and growing. A K-State Polytechnic Graduate Certificate in UAS – Information Assurance could have a significant long-term (alumni) impact on this bludgeoning market.

Starting salary for Information Assurance-trained graduates is between US $70- 95K depending upon qualifications. The market is very brisk for these resources. It is expected that combination aviation and Information Assurance training will posts salaries about 30% higher. Graduates of the certificate program will need to be monitored for figures that are more accurate.

The market for Information Assurance jobs remains bright. The field of Cyber conflict is an ever-evolving field and many concepts are yet-to-be defined or fully analyzed. Two issues are clear: the threat posed by cyber-attacks to the nation's critical infrastructures are real and growing, and the Intelligence Paradigm will be a major and growing component of overall national cyber conflict capability. Of special interest are air assets, i.e. UAS / UAVs, which have been used effectively in the last six years for intelligence and counter terrorism operations.

A series of recent blue-ribbon panels have decried the state of the nation's Information Assurance education workforce and called for large-scale public investments in Information Assurance education. According to a December, 2008 report by Center for Strategic and International Studies (CSIS): "The cyber threat to the United States affects all aspects of society, business and government but there is neither a broad cadre of cyber experts nor an established cyber career field to build upon, particularly within the federal government. In other words, just as in the world wars, we have a shortage of "pilots" (and "ground crews" to support them) for cyberspace."

V. DESCRIPTION OF THE CERTIFICATE PROGRAM ADMINISTRATION

The Graduate Program Director of the College of Technology and Aviation will administer the proposed Graduate Certificate in UAS – Information Assurance. Dr. Don Von Bergen will be the primary program administrator and contact for the certificate program. Dr. Von Bergen will work with the Polytechnic campus marketing team and Professional Education and Outreach unit to market the program.

VI. ESTIMATED BUDGET

The program will be sustained by adding it to the Polytechnic campus on-line program website and KSU - Polytechnic website for marketing and recruitment. The certificate courses will be part of KSU - Polytechnic on-line course offerings. Courses will be taught by existing faculty, with the potential to add faculty if the demand warrants. The program will be supported by revenue generated from courses and by College of Technology and Aviation resources.

VII. NAMES OF FACULTY LEADING AND/OR CONTRIBUTING TO THE CERTIFICATE PROGRAM

Dr. Kurt Barnhart

Dr. Kurt Barnhart is Professor and currently the Associate Dean of Research at Kansas State University Polytechnic in addition to serving as the executive director of the Applied Aviation Research Center which established and now oversees the Unmanned Aerial Systems program office. Most recently, Dr. Barnhart was Head of the Aviation Department at Kansas State University. Dr. Barnhart is a member of the graduate faculty at K-State and holds a commercial pilot certificate with instrument, multi-engine, seaplane, and glider ratings. He also is a certified flight instructor with instrument and multi-engine ratings. Dr. Barnhart also holds an airframe and power plant certificate with inspection authorization and is a former FAA designated examiner for aircraft maintenance technicians. Dr. Barnhart holds an A.S. in Aviation Maintenance Technology from Vincennes University, a B.S. in aviation administration from Purdue University, an MBAA from Embry-Riddle Aeronautical University, and a Ph.D. in educational administration from Indiana State University. Dr. Barnhart's research agenda has focused in aviation psychology and Human Factors in the past and more recently in the area of integration of Unmanned Aircraft Systems into the National Airspace System. His industry experience includes work as a R&D inspector with Rolls Royce Engine Company where he worked on the RQ-4 Unmanned Reconnaissance Aircraft development program as well as other development projects for the Cessna Citation X, V-22 Osprey, Saab 2000, and C-130. He also served as an aircraft systems instructor for American Trans-Air airlines. Formerly, Dr. Barnhart was an Associate Professor and Acting Department Chair of the Aerospace Technology at Indiana State University where he was responsible for teaching flight and upper division administrative classes with an emphasis on aviation management, air carrier safety, and aircraft accident investigation. Courses taught include Aviation Risk Analysis, Citation II Ground School, King Air 200 Flight, Air Navigation, Air Transportation, Instrument Ground School and many others.

Associate Professor of Practice Randy Nichols

- Author/ Developer: MS / Certificate in Unmanned Aerial Systems (UAS) -Information Assurance
- Author/ Developer: BS Unmanned Aerial Systems (UAS) –Information Assurance Minor
- Retired Chair and Program Developer: MS - Information Assurance –Intelligence and Forensics
- Retired Chair and Program Director: BS – Information Assurance and Information Assurance
- Co-Author/ Developer: MPS – Risk Assessment and Information Assurance Policy
- Author/Developer: MS Cyber Surveillance and Warfare

Nichols was COO of INFOSEC Technologies, LLC, a consulting firm specializing in Counter-Terrorism, Counter-Espionage, and Information Security Countermeasures to support its 1700 commercial, educational and U.S. government clients. He also served as CEO of COMSEC Solutions, a Cryptographic / Anti-virus / Biometrics Countermeasures Company, which was acquired by a public company in 2000. He served as Vice President of Cryptography and Director of Research of the acquiring firm. Additionally, Nichols served as Technology Director of Cryptography and Biometrics for the International Computer Security Association (ICSA), President, and Vice President of the American Cryptogram Association (ACA). Nichols is internationally respected, with 47 years of experience in leadership roles in cryptography, counter-intelligence, INFOSEC, and sensitive computer applications. Professor Nichols previously taught graduate courses in INFOSEC, Cryptography and Systems Applications Management and Policy, Counter-Terrorism, Risk Assessment, and Wireless Security for the School of Engineering Management and Applied Science (SEAS), at George Washington University in Washington, D.C. and Cryptology, Data Protection, Intrusion Detection, Computer Forensics and Risk Assessment at UMUC Graduate School, for the ITS Department, College Park, MD. At UMUC, Professor Nichols was nominated twice (2004-2005) for the prestigious Stanley J. Drazek Teaching Excellence Award. At the Center for Applied Information Technology, Towson University, he taught Risk Assessment and Information Security, Computer Systems Development Lifecycle and Middleware, and IT Architecture

and Information Security. Nichols is co-developer of the six core courses for the Towson University Homeland Security and Critical Infrastructures Protection Master's Program (IHSM). Professor Nichols has been an invited lecturer at the FBI National Academy at Quantico, VA. Professor Nichols is certified as a Federal Expert Witness (Defense, Treason cases) in both Cryptography and Computer Forensics. DOD, DTRA & FBI, considers him a subject matter expert (SME) on Counter-Intelligence and Counter-Terrorism methodologies.

Nichols writings (with co-author Panos Lekkas) include Wireless Security: Models, Threats, and Solutions, McGraw Hill, 2002, a definitive textbook on the security of wireless systems and Defending Your Digital Assets: Against Hackers, Crackers, Spies, and Thieves, (with co-authors Dan and Julie Ryan) McGraw Hill, 2000, a best-selling title on the subjects of cryptography and information security (INFOSEC) countermeasures. Nichols' previous books, The ICSA Guide to Cryptography McGraw Hill, 1998, and Classical Cryptography Course, Volumes I & II, Aegean Park Press, 1995, and 1996, have gained recognition and industry respect for Nichols. Nichols was the Wiley invited author for Chapter 74, Wireless Information Warfare in their December 2005, 3-volume Handbook of Information Security, edited by Hossein Bigoli. Professor Nichols is currently researching and writing a textbook entitled: Unmanned Aircraft Systems (UASs) In the Cyber Domain: Protecting US's Advanced Air Assets.

Nichols holds BSChE and MSChE degrees from Tulane University and Texas A & M University, respectively and an MBA from the University of Houston. Professor Nichols held a TS / SCI security clearance (USDOJ) with SSBI done by the FBI. In 2016, after 20 years of public service, speaking and leadership, Professor Nichols was awarded the Distinguished Toastmaster Award [DTM] (TMI's highest award-<1% receive)

Areas of Expertise:

- Counter-Terrorism / Counter- Intelligence /Counter-Espionage / Computer Security Countermeasures
- Asymmetric Warfare and Attack / Defense Scenarios against National Critical Infrastructure
- Computer Forensics and Cryptography Federal Expert Witness (Federal Criminal Cases: Treason / Espionage)
- Computer Forensics & Intrusion Detection
- Risk Assessment / Threat Analysis / Vulnerabilities Analysis / Countermeasures
- Information Assurance / Surveillance Technologies: Aerial, Infrared, Visual, Ultraviolet, Radio, Radar & Sonar
- SCADA – Advanced Cyber-weapons Creation / Deployment / Defense
- UAS- Integrating Unmanned Aircraft Systems into National Airspace System

Kurt J. Carraway, Col (Ret), USAF

After serving 25 years with the United States Air Force, retired Colonel Kurt J. Carraway is K-State Polytechnic's Applied Aviation Research Center Executive Director. In this capacity, Carraway provides strategic leadership in advancing Kansas State University's UAS program goals. He directs the execution of research activities involving UAS through the Applied Aviation Research Center (AARC). Carraway also directs flight operations development and maturation of the UAS training program through direct supervision of the Flight Operations staff. He manages highly skilled UAS professionals that perform hundreds of UAS flights per year in civil airspace. He sets policies and procedures for unmanned flight operations. He serves as Principal Investigator (PI) on UAS activities through the AARC and is the University PI representative to ASSURE, the FAA's UAS Center of Excellence. In that role, he also serves as the UAS training focal point lead. Carraway is a Professor, an instructor, and mentor to students.

Carraway spent his USAF career as an aviator, flying the KC-135 and the RQ-4 Global Hawk unmanned aircraft. The Global Hawk is the DoD's largest remotely piloted aircraft, used for conducting intelligence, surveillance and reconnaissance. Carraway worked as an evaluator and instructor pilot, and later became commander of the Global Hawk squadron. Carraway established standard operating procedures and composed technical manuals for the military's use of the Global Hawk. For his last assignment, he was stationed at Camp Smith in Oahu, Hawaii where he served first as Joint Operations Director and then

Division Chief of Current Operations, both for the U.S. Pacific Command.

Col Carraway possesses a Top Secret security clearance and is SCI eligible (SSBI PR, Jan 2012) with a CI Polygraph (Nov 2013) and experience in Special Access Programs and Special Technical Operations.

Graduate School
Unmanned Aircraft Systems – Information Assurance Certificate
College of Technology and Aviation
Assessment of Student Learning Plan

A. College, Department, and Date

College: College of Technology and Aviation
Department: School of Integrated Studies
Date: November 14, 2017

B. Contact Person(s) for the Assessment Plan

Dr. Don Von Bergen, Graduate Program Director

C. Name of Proposed Degree Program or Certificate

Graduate Certificate in Unmanned Aircraft Systems - Information Assurance

D. Assessment of Student Learning Three-Year Plan

I. Student Learning Outcome(s)

a. **Student learning outcomes for the program.**

Upon completion of the Graduate Certificate in Unmanned Aircraft Systems – Information Assurance program, the students will be able to:

1. Identify threats to critical information assets of UAS operations.
2. Apply critical thinking and problem-solving skills to address current and future risks of UAS operations.
3. Demonstrate communication skills at a professional level.
4. Demonstrate an understanding of the applications of cyber technology to UAS field operations.
5. Demonstrate an understanding of importance of privacy, legal and ethical issues of UAS operations information security.

b. **Indicate at least three outcomes on the above list that will be assessed by the first mid-cycle review.**

All five student learning outcomes are important and will be assessed and evaluated by the first-cycle review.

Specify the rationale for selecting these learning outcomes:
Students will be able to complete the certificate program in one year so it is important to assess and evaluate all the SLOs by the first mid-cycle review. These SLOs emphasize the knowledge, skills, and attributes and provide broad basis of program specific competencies.

Relationship to K-State Graduate Student Outcomes:

Alignment Matrix for UAS – CS Graduate Certificate Program

SLO/Required Courses/experiences	**COT 680**	**COT 682**	**COT 684**	**COT 686**	**COT 688**	**Oral Presentation**	**Written Report**
1. Identify threats to critical information assets of UAS operations.	XA			X	X	A	A
2. Apply critical thinking and problem-solving skills to address current and future risks of UAS operations.			X	XA	X	A	A
3. Demonstrate written and oral skills at a professional level.		X	A	X		A	A
4. Demonstrate an understanding of the applications of cyber technology to UAS field operations.				XA	XA	A	A
5. Demonstrate an understanding of importance of privacy, legal and ethical issues of UAS operations information security.		XA				A	A
University SLOs (Graduate Programs)							
Knowledge	X		X	X	X	A	A
Skills		X	X	X	X	A	A
Attitudes and Professional Conduct	X	X	X	X		A	A

- Place an "X" for courses or experiences in which students have the opportunity to learn the outcome (coursework, other program requirements).
- Place an "A" for courses or experiences in which student performance is used for program level assessment of the outcome. (assignments in courses, evaluation of final thesis, report, dissertation)

II. Assessment Strategies
SLOs will be assessed over the course of time through a combination of both course assessment and program assessment.

Measures to be used:

- Each outcome will be evaluated by multiple direct measures including collection of identified relevant materials from the required courses such as reports and presentations.
- Indirect measures will be taken through exit survey conducted at the end of the program.
- The survey (indirect measures) will be completed anonymously by students. Each targeted course instructor will use course objective alignment matrix with SLOs.

Student Learning Outcome Assessment Rubrics and timing

1. Identify threats to critical information assets of UAS operations.
    - SLO #1 will be assessed by using Rubric #1 on page 12
    - Assessment will occur using a written paper during the third week of the semester, and using detailed Power Point presentations during the sixth and final week of the semester.
    - Students' aggregate rating will be a minimum of 9 with no more than one rating falling below *Acceptable*.

2. Apply critical thinking and problem-solving skills to address current and future risks of UAS operations.
    - SLO #2 will be assessed by using Rubric #2 on page 13
    - Assessment will occur using a written paper during the third week of the semester, and using detailed Power Point presentations during the sixth and final week of the semester.
    - Students' aggregate rating will be a minimum of 9 with no more than one rating falling below Acceptable.

3. Demonstrate communication skills at a professional level.
    - SLO #3 will be assessed by using Rubric #3 on pages 14-15
    - Assessment will occur using a written paper during the third week of the semester, and using detailed Power Point presentations during the sixth and final week of the semester.
    - Students' aggregate rating will be a minimum of 15 with no more than one rating falling below Acceptable.

4. Demonstrate an understanding of the applications of cyber technology to UAS field operations.
    - SLO #4 will be assessed by using Rubric #4 on page 16
    - Assessment will occur using a written paper during the third week of the semester, and using detailed Power Point presentations during the sixth and final week of the

semester.
- Students' aggregate rating will be a minimum of 6 with no more than one rating falling below Acceptable.

5. Demonstrate an understanding of importance of privacy, legal and ethical issues of UAS operations information security.
- SLO #5 will be assessed by using Rubric #5 on page 17
- Assessment will occur using a written paper during the third week of the semester, and using detailed Power Point presentations during the sixth and final week of the semester.
- Students' aggregate rating will be a minimum of 6 with no more than one rating falling below Acceptable.

Indirect Assessment
- All students are required to complete the exit survey that serves as self-assessment of program SLOs. This will be completed at the end of the semester of the last course taken.
- Students will be given an opportunity to provide input on how well they learned the SLOs.
- The amount learned will be scored in a 1-4 scale, 4 being the highest level learned for each SLO. Overall effectiveness of the Certificate will be based on the total score for all SLOs as shown at the bottom of page 19.

III. Results and Review of Student Learning Outcomes and Assessment Strategies

- Each course instructor is responsible to collect direct and indirect assessment data every semester the target course offered, evaluate assessment data, and determine the achievement of student learning outcomes annually.
- Certificate program level assessment is based on data gathered from the course level assessment and will be reviewed annually by program assessment team.
- The assessment team will make recommendations to the graduate faculty and Director to improve curriculum and courses, update the student learning outcomes and assessment standards.
- The assessment team will review the alignment matrix to make sure all SLOs are appropriately assessed and evaluated to measure the achievement of SLOs.
- Overall the evaluation results will be used to improve certificate program curriculum and courses. It will also be used by the faculty to update the SLOs, assessment tools, performance criteria and assessment plan.

Appendix: Rubrics, Surveys, Other documentation

SLO 1: Identify threats to critical information assets of UAS operations.

a. Describe and explain UAS and the process required for UAS operations.
b. Describe the process of identifying risks and threats.
c. Explain and apply risk analysis assessment to critical information assets.

	1	**2**	**3**	**4**
	Poor	Marginal	Acceptable	Exceptional
1a	Fail to identify any relevant process steps to describe risks and threats.	Identify some of the relevant process steps to describe risks and threats.	Identify all of the relevant process steps to describe risks and threats, but fail to provide examples to support findings.	Identify all of the relevant process steps to describe risks and threats, and provided examples to support findings.
1b	Fail to identify key steps in the process of authentication.	Identify most of the key steps in the process of authentication with some errors.	Identify all the key steps in the process of authentication but fail to provide examples to support findings.	Identify all the key steps in the process of authentication and provided examples to support findings.
1c	Fail to Explain and apply risk analysis assessment to critical information assets.	Explained and applied risk analysis assessment to critical information assets	Explained and applied risk analysis assessment to critical information assets, but fail to provide examples to support findings.	Explained and applied risk analysis assessment to critical information assets, and provided examples to support findings.

SLO 2. Apply critical thinking and problem-solving skills to address current and future risks of UAS operations.

a. Describe Information Assurance risk and vulnerability assessments.
b. Discuss how risk and vulnerability assessments improve Information Assurance for UAS operations.
c. Demonstrate the ability to conduct a risk and vulnerability assessment.

	1	2	3	4
	Poor	Marginal	Acceptable	Exceptional
2a	Fail to identify any of the relevant core principles in analyzing "security risk" and conducting "vulnerability assessments. Include many irrelevant principles in the description.	Identify most of the relevant core principles in analyzing "security risk" and conducting "vulnerability assessments. May include some irrelevant principles in the description.	Identify all of the relevant core principles in analyzing "security risk" and conducting "vulnerability assessments. May include one minor irrelevant principle in the description.	Identify all of the relevant core principles in analyzing "security risk" and conducting "vulnerability assessments with 100% accuracy.
2b	Applies knowledge of analyzing security risk and vulnerability assessments in a mechanistic or simplistic manner with minimal inclusion of events/incidents *or* with inclusion of large amounts of irrelevant material AND/OR provide rationales are inappropriate within the student's own interpretation.	Applies knowledge of analyzing security risk and vulnerability assessments sequentially and separately to the events/incidents but uses relevant data. Produces logical rationales without awareness of the wider context.	Applies knowledge of analyzing security risk and vulnerability assessments sequentially and separately to the events/incidents. Uses relevant data. Produce appropriate rationales and indicate any major operational consequences (e.g. time/resource requirements; changes in procedures).	Applies knowledge of analyzing security risk and vulnerability assessments in an integrated manner to the events/incidents. Uses relevant data. Produces appropriate solution(s) and indicates any major operational consequences (e.g. time/resource requirements; changes in procedures).
2c	Fail to provide a relevant and appropriate example to the student's competency in conducting risk and vulnerability assessment.	Provide one example that appropriately demonstrate the student's competency in conducting risk and vulnerability assessment. There may be one of an inappropriate example	Provide a couple of examples that appropriately demonstrate the student's competency in conducting risk and vulnerability assessment.	Provide more than two examples that appropriately demonstrate the student's competency in conducting risk and vulnerability assessment.

SLO 3: Demonstrate communication skills at a professional level.

Written Rubric

Course		Date	Reviewer

Topic/Score	Poor (1)	Marginal (2)	Acceptable (3)	Exceptional (4)
Context of and Purpose for Writing *Includes considerations of audience, purpose, and the circumstances surrounding the writing task(s).*	Demonstrates minimal attention to context, audience, purpose, and to the assigned tasks(s) (e.g., expectation of instructor or self as audience).	Demonstrates awareness of context, audience, purpose, and to the assigned tasks(s) (e.g., begins to show awareness of audience's perceptions and assumptions).	Demonstrates adequate consideration of context, audience, and purpose and a clear focus on the assigned task(s) (e.g., the task aligns with audience, purpose, and context).	Demonstrates a thorough understanding of context, audience, and purpose that is responsive to the assigned task(s) and focuses all elements of the work.
Content Development	Uses appropriate and relevant content to develop simple ideas in some parts of the work.	Uses appropriate and relevant content to develop and explore ideas through most of the work.	Uses appropriate, relevant, and compelling content to explore ideas within the context of the discipline and shape the whole work.	Uses appropriate, relevant, and compelling content to illustrate mastery of the subject, conveying the writer's understanding, and shaping the whole work.
Genre and Disciplinary Conventions *Formal and informal rules inherent in the expectations for writing in particular forms and/or academic fields (please see glossary).*	Attempts to use a consistent system for basic organization and presentation.	Follows expectations appropriate to a specific discipline and/or writing task(s) for basic organization, content, and presentation.	Demonstrates consistent use of important conventions particular to a specific discipline and/or writing task(s), including organization, content, presentation, and stylistic choices.	Demonstrates detailed attention to and successful execution of a wide range of conventions particular to a specific discipline and/or writing task (s) including organization, content, presentation, formatting, and stylistic choices.
Sources and Evidence	Demonstrates an attempt to use sources to support ideas in the writing.	Demonstrates an attempt to use credible and/or relevant sources to support ideas that are appropriate for the discipline and genre of the writing.	Demonstrates consistent use of credible, relevant sources to support ideas that are situated within the discipline and genre of the writing.presentation, and stylistic choices.	Demonstrates skillful use of high-quality, credible, relevant sources to develop ideas that are appropriate for the discipline and genre of the writing.
Control of Syntax and Mechanics	Uses language that sometimes impedes meaning because of errors in usage.	Uses language that generally conveys meaning to readers with clarity, although writing may include some errors.	Uses straightforward language that generally conveys meaning to readers. The language in the portfolio has few errors.	Uses graceful language that skillfully communicates meaning to readers with clarity and fluency, and is virtually error-free.

Oral Presentation Rubric

Course		Date	Reviewer

Topic)/ Performance Score	**Poor**	**Marginal**	**Acceptable**	**Exceptional**
Organization (specific introduction and conclusion, sequenced material within the body, and transitions)	Organizational pattern is not observable within the presentation.	Organizational pattern is intermittently observable within the presentation.	Organizational pattern is clearly and consistently observable within the presentation.	Organizational pattern is clearly and consistently observable and is skillful and makes the content of the presentation cohesive.
Language (Content & Knowledge)	Language choices are unclear, not appropriate to audience, and minimally support the effectiveness of the presentation.	Language choices are appropriate to audience, mundane and commonplace and partially support the effectiveness of the presentation.	Language choices are appropriate to audience, thoughtful and generally support the effectiveness of the presentation.	Language choices are appropriate to audience, imaginative, memorable, and compelling, and enhance the effectiveness of the presentation.
Delivery (posture, gesture, eye contact, and vocal expressiveness)	Delivery techniques detract from the understandability of the presentation, and speaker appears uncomfortable.	Delivery techniques make the presentation understandable, and speaker appears tentative.	Delivery techniques make the presentation interesting, and speaker appears comfortable.	Delivery techniques make the presentation compelling, and speaker appears polished and confident.
Supporting Material (explanations, examples, illustrations, statistics, analogies, quotations from relevant authorities)	Insufficient supporting materials.	Supporting materials make appropriate reference that partially supports the presentation topic.	Supporting materials make appropriate reference to information and establishes the presenter's credibility/authority on the topic.	A variety of types of supporting materials make appropriate reference to information or analysis that significantly supports the presentation or establishes the presenter's credibility/authority on the topic.
Central Message (precisely stated, appropriately repeated, memorable, and strongly supported.)	Central message can be deduced, but is not explicitly stated in the presentation.	Central message is basically understandable but is not often repeated and is not memorable.	Central message is clear and consistent with the supporting material.	Central message is compelling.

SLO 4: **Demonstrate an understanding of the applications of cyber technology to UAS field operations.**

a. Describe and explain cyber surveillance techniques.
b. Describe the process of analyzing collected data.
c. Explain sense and avoid technologies relevant to UAS operations.

	0	**1**	**2**	**3**
	Poor	Marginal	Acceptable	Exceptional
1a	Fail to identify applications of cyber surveillance to UAS field operations.	Identify some of the relevant applications of cyber surveillance to UAS field operations.	Identify all of the relevant applications of cyber surveillance to UAS field operations.	Identify all of the relevant applications of cyber surveillance to UAS field operations, and provided examples to support findings.
1b	Fail to identify key steps in the process of analyzing collected data.	Identify most of the key steps in the analyzing collected data with some errors.	Identify all the key steps in the process of analyzing collected data but fail to provide examples to support findings.	Identify all the key steps in the process of analyzing collected data and provided examples to support findings.
1c	Fail to explain sense and avoid technologies relevant to UAS operations.	Explained sense and avoid technologies relevant to UAS operations.	Explained sense and avoid technologies relevant to UAS operations, but fail to provide examples to support findings.	Explained sense and avoid technologies relevant to UAS operations, and provided examples to support findings.

SLO 5: Demonstrate an understanding of importance of privacy, legal and ethical issues of UAS operations information security.

a. Identify specific involvement and knowledge in identifying and analyzing "events" and "incidents".
b. Describe the process of incident coordination.
c. Discuss how to resolve legal and ethical issues during incident coordination.

	0	1	2	3
	Poor	Acceptable	Good	Excellent
5a	Fail to identify any relevant core principles in analyzing cyber events and incidents, principles. May include some irrelevant principles.	Identified all of the relevant core principles in analyzing cyber events and incidents, principles. May include one irrelevant principle.	Identified all the relevant core principles in analyzing cyber events and incidents and organizes them logically.	Identified all the relevant core principles in analyzing cyber events and incidents and organizes them logically and notes major limitations (e.g. missing information, dependence on other processes/operations).
5b	Fail to identify key steps in the process of incident coordination.	Identified most of the key steps in the process of incident coordination with some errors.	Identified all the key steps in the process of incident coordination and may include a couple minor error.	Identified all the key steps in the process of incident coordination with 100% accuracy.
5c	Applies knowledge of the legal and ethical environment in a mechanistic or simplistic manner with minimal inclusion of events/incidents *or* with inclusion of large amounts of irrelevant material AND/OR solutions proposed are inappropriate within the student's own interpretation of the events/incidents.	Applies knowledge of the legal and ethical environment sequentially and separately to the events/incidents but uses relevant data. Produces logical solution(s) without awareness of the wider context. Solutions are accurate/appropriate within the student's own interpretation of the events/incidents.	Applies knowledge of the legal and ethical environment sequentially and separately to the events/incidents. Uses relevant data. Produces appropriate solution(s) and indicates any major organizational consequences (e.g. time/resource requirements; changes in procedures).	Applies knowledge of the legal and ethical environment in an integrated manner to the events/incidents. Uses relevant data. Produces appropriate solution(s) and indicates any major organizational consequences (e.g. time/resource requirements; changes in procedures).

Kansas State University Polytechnic
Unmanned Aircraft Systems – Information Assurance Certificate Program

Graduate Exit Assessment Survey

- Graduate certificate students will be required to self-assess their knowledge and professional skills upon completion of the program.
- The purpose of this survey is to document an increase in the student's knowledge and professional skills and to assist with program evaluation, focusing on continuous improvement of the program.
- The survey will be administered by the instructor at the end of the semester of the last course taken to complete the certificate.

This survey consists of two parts:

1. General information on student's professional background.
2. Graduate Exit Self-Assessment Survey, based on specific Student Learning Outcomes of the program.

PART ONE: Education/Professional Background

1. Are you currently employed in business/industry/government?
___ Yes ___ No
2. Indicate your professional status by selecting one of the following categories:

___ Industry internship experience
___ Employed in an unrelated employment position
___ Employed in an entry level industry position
___ Employed in an industry management position
____ Unemployed
___ Operate your own industry-related business
___ Post Baccalaureate Degree earned in _____(field).

3. How many years of industry experience do you have?
___ 0 years ___ 1-5 years ___ 6-10 years ___ 11-15 years ___ Over 15 years

PART TWO: Graduate Certificate <u>Self</u>-Assessment Survey

Knowledge and Professional Skills – <u>Prior to</u> Completing Certificate
Assess your level of understanding and/or competency for each of the following outcomes, as it applied to your specific area of emphasis, study, or profession **<u>prior to completing the certificate</u>**:

1. Identify threats to critical information assets of UAS operations.
___ Limited Knowledge ___ Fair ___ Good ___ Excellent

2. Apply critical thinking and problem-solving skills to address current and future risks of UAS operations.
___ Limited Knowledge ___ Fair ___ Good ___ Excellent

3. Demonstrate written and oral skills at a professional level.
___ Limited Knowledge ___ Fair ___ Good ___ Excellent

4. Demonstrate an understanding of the applications of cyber technology to UAS field operations.
___ Limited Knowledge ___ Fair ___ Good ___ Excellent

5. Demonstrate an understanding of importance of privacy, legal and ethical issues of UAS operations information security.
___ Limited Knowledge ___ Fair ___ Good ___ Excellent

Knowledge and Professional Skills – <u>After</u> Completing Certificate
Assess your level of understanding and/or competency for each of the following outcomes, as it applied to your specific area of emphasis, study, or profession **<u>after completing the certificate</u>**:

1. Identify threats to critical information assets of UAS operations.
___ Limited Knowledge ___ Fair ___ Good ___ Excellent

2. Apply critical thinking and problem-solving skills to address current and future risks of UAS operations.
___ Limited Knowledge ___ Fair ___ Good ___ Excellent

3. Demonstrate written and oral skills at a professional level.
___ Limited Knowledge ___ Fair ___ Good ___ Excellent

4. Demonstrate an understanding of the applications of cyber technology to UAS field operations.
___ Limited Knowledge ___ Fair ___ Good ___ Excellent

5. Demonstrate an understanding of importance of privacy, legal and ethical issues of UAS operations information security.
___ Limited Knowledge ___ Fair ___ Good ___ Excellent

<u>Scoring Key for Survey</u>
Limited Knowledge - 1
Fair - 2
Good - 3
Excellent - 4

<u>Total Score</u>
5 - 10 Certificate Not Meeting Minimum Expectations – Review Entire Certificate Delivery
11 – 15 Certificate Not meeting Expectations, Improve and Upgrade Instruction Regarding Areas of Concern (address individual low scores)
16 – 18 Certificate Meeting Expectations but Continue with improvements to low scored areas
19 – 20 Certificate Exceeding Expectations, Continue with Current Certificate Delivery Methods

Graduate Certificate in Unmanned Aerial Systems (UAS) – Information Assurance

Proposed Teaching Plan

CERTIFICATE PROGRAM COURSES – 15 Hours

FALL Semester
COT 680 Unmanned Aircraft Systems and Risk Analysis (3)
Primary Instructor: Randy Nichols
Secondary Instructor: Kurt Carraway

COT 682 Open Source Cyber Surveillance (3)
Primary Instructor: Randy Nichols
Secondary Instructor: Kurt Barnhart

SPRING Semester
COT 686 Risk Management for Unmanned Aircraft Systems Operators, Pilots, and Ground Personnel (3)
Primary Instructor: Kurt Carraway
Secondary Instructor: Randy Nichols

COT 688 Sense and Avoid Technologies in Unmanned Aircraft Systems (3)
Primary Instructor: Randy Nichols
Secondary Instructor: Kurt Carraway

SUMMER Semester
COT 684 Advanced Topics in Cyber Data Fusion (3)
Primary Instructor: Kurt Barnhart
Secondary Instructor: Randy Nichols

Rationale: The outside interests from the intelligence and aviation communities became acute after the 2011 RQ-170 incident where Iran was credited with its capture. In addition, in 2014, Iran claimed the downing of an Israeli Hermes 450 Drone over Natanz. Reports like these cause major government concerns. They require better risk assessment and teaching active cyber defenses to protect UAS assets. Hence the initial graduate certificate program in UAS - S Information Assurance.

Budding cyber criminals and terrorists are involved in a huge number of crimes and terrorist activities. The impact of UAS Information Assurance losses are so valuable that they cannot be ignored by regulatory or intelligence agencies. The risks are real. The amount of federal and state money being appropriated at the problem is a good crystal ball for future jobs in the Information Assurance fields. Presidential support has been quite serious about spending federal dollars in support of cyber defense.

A huge portion of the initiative funds have been directed at the United State Air Force (USAF) Cyber Command and Homeland Security operations. A visit to Google using the search term Information Assurance Job Market brought up thousands of articles, existing jobs, and job announcements. According to experts interviewed, for the next 5-10 years, the Information Assurance and related cyber studies job market will be brisk and growing. A K-State Polytechnic Graduate Certificate in UAS – Information Assurance could have a significant long-term (alumni) impact on this bludgeoning market.

Starting salary for Information Assurance-trained graduates is between US $70- 95K depending upon qualifications. The market is very brisk for these resources. It is expected that combination aviation and Information Assurance training will posts salaries about 30% higher. Graduates of the certificate program will need to be monitored for figures that are more accurate.

The market for Information Assurance jobs remains bright. The field of Cyber conflict is an ever-evolving field and many concepts are yet-to-be defined or fully analyzed. Two issues are clear: the threat posed by cyber-attacks to the nation's critical infrastructures are real and growing, and the Intelligence Paradigm will be a major and growing component of overall national cyber conflict capability. Of special interest are air assets, i.e. UAS / UAVs, which have been used effectively in the last six years for intelligence and counter terrorism operations.
A series of recent blue-ribbon panels have decried the state of the nation's Information Assurance education workforce and called for large-scale public investments in Information Assurance education. According to a December, 2008 report by Center for Strategic and International Studies (CSIS): "The cyber threat to the United States affects all aspects of society, business and government but there is neither a broad cadre of cyber experts nor an established cyber career field to build upon, particularly within the federal government. In other words, just as in the world wars, we have a shortage of "pilots" (and "ground crews" to support them) for cyberspace."

Impact (i.e. if this impacts another unit) – Statement should include the date when the head of a unit was contacted, and the response or lack of: No impact