

Add: Certificate in Integrated Risk Management

CIP Code - The CIP Code for this undergraduate certificate will be 52.0899 Title: Finance and Financial Management Services, Other.

Certificate in Integrated Risk Management

Purpose

The Certificate in Integrated Risk Management is designed as a multidisciplinary specialization for students whose career interests include making business decisions involving risk. The purpose of the Certificate is to provide undergraduate Student Fellows in the Center for Risk Management Education & Research (CRMER) with the opportunity to participate in a concentrated curriculum in integrated risk management concepts, tools, and applications. The course sequence of this Certificate complements and leverages the experiential learning activities Student Fellows participate in through the CRMER.

Objectives

Upon completion of the Certificate students will be prepared to:

- Identify and prioritize the types of complex and interconnected risks present in business decision making.
- Recognize how and why different firms have divergent risk tolerances and risk management strategies.
- Effectively communicate with risk management business executives to understand the rationale for risk management plans, the nature of risk assessment and prioritization, and methods used to measure and monitor risk.
- Use appropriate quantitative decision tools to identify and measure risk including stochastic simulation, decision analysis, game theory, and statistical modeling.
- Understand tools companies use to manage risk including insurance, futures and derivative markets, portfolio concepts, scenario analyses, market intelligence, and redundancy and backup systems.
- Conduct risk management research and effectively communicate risk management analyses and findings in written form and in oral presentations to business executives.

Course Requirements

The Certificate in Integrated Risk Management consists of 18 credit hours. The four core courses and elective course options are currently offered from the Departments of Agricultural Economics, Finance, and Industrial Manufacturing and Systems Engineering. All courses must be taken for a letter grade to qualify for the Certificate.

Core Courses (12 credits required)

AGEC 750 Risk Management Fellows Seminar	3 credits
AGEC 680 Risk Management	3 credits
FINAN 654 Derivative Securities and Markets	3 credits
IMSE 751 Normative Theory of Decisions & Games	3 credits

Electives Courses (6 credits required not from student's major department)

AGEC 420 Commodity Futures	3 credits
AGEC 520 Mkt Fund and Futures/Options Trading	3 credits
AGEC 605 Price Analysis and Forecasting	3 credits
AGEC 712 Optimization Technique for Ag Econ	3 credits
FINAN 498 Financial Modeling	3 credits
FINAN 520 Investments	3 credits
FINAN 643 International Finance	3 credits
FINAN 653 Security and Portfolio Analysis	3 credits
IMSE 560 Introduction to Operations Research I or	3 credits
IMSE 680 Quant. Problem Solving Techniques	3 credits
IMSE 633 Production Plan and Inventory Control	3 credits
IMSE 641 Quality Engineering	3 credits
IMSE 643 Industrial Simulation	3 credits

Certificate Completion Notes

- Students must be accepted and either actively engaged, or completed the program, as a Student Fellow in the Center for Risk Management Education & Research to qualify for Certificate.
- The 6 credits of Elective Courses used to fill requirements for the Certificate cannot be taken in the student's primary major department.
- Students must earn a minimum of 3.0 grade point average on courses taken in the Certificate to fulfill the requirements of the Certificate in Integrated Risk Management.
- No more than 25% of total credit hours required for the Certificate may be transfer credits.
- The Certificate is offered only to degree seeking students and is not available for non-degree seeking students.

Supplemental Material

Core Course Descriptions:

AGEC 750 – Ag Economics & Agribusiness Problems – Risk Management Fellows Seminar (1 Credit taken for 3 semesters)

Center for Risk Management Education and Research Student Fellows seminar course.

Prerequisite: Student Fellow of Center for Risk Management Education and Research and instructor consent. Offered Spring and Fall.

AGEC 680 - Risk Management (3 Credits)

Analytical concepts and quantitative tools to make better decisions in risky situations.

Identifying various types of risk an operation faces, measuring the degree of risk, and exploring ways to manage risk. Includes portfolio analysis, futures and options, contracting, and insurance. Emphasis on computer applications. Topics are focused on agriculture but are applicable to other industries and household decisions. Prerequisites: AGEC 420, AGEC 513 or FINAN 450, and a course in statistics. Typically Offered Spring.

FINAN 654 - Derivative Securities and Markets (3 Credits)

Structure and operation of markets for futures, swaps, options, synthetic options, and futures on options. Valuation of futures contracts and options. Applications of derivatives to hedging and speculating strategies. Prerequisite: FINAN 510 and FINAN 520 or FINAN 815. Typically Offered Spring.

IMSE 751 - Normative Theory of Decisions and Games (3 Credits)

Bayes theorem, Bayesian estimators, utility, loss function and risk, minimax strategies, elementary game theory. Three hours recitation a week. Prerequisite: STAT 511. Typically Offered Fall.

Prerequisites

For Center for Risk Management Education and Research Student Fellows instructor permission will be granted to enroll in each of these courses as follows:

AGEC 680 will require AGEC 513 or FINAN 450, but not AGEC 420 as material will be partially covered through Risk Management Center activities.

FINAN 654 will not require FINAN 510 and FINAN 520 for Student Fellows, but will require instructor permission.

IMSE 751 will not require STAT 511 for Student Fellows, but will require instructor permission.

Statement of Need

Managing risk is one of the most acute problems facing business today. Risk arises from a variety of sources including, heightened market volatility, explosive growth in communications, climate variation, political and social change, cyber risk, terrorism, and global macroeconomic fluctuations. Poor risk management can result in substantial financial losses and major firm bankruptcies. Businesses are impacted by market changing events that can occur anywhere around the globe. Effects can be felt instantaneously.

Demand for graduates with integrated risk management skills is vast. Industry leaders have spoken to the elevated need for more integrated risk management skills of college graduates:

"Meeting the risk management needs of today and tomorrow requires a strategic view across multiple disciplines. This is what makes CRMER both unique and exciting, given the interdisciplinary approach taken across several outstanding colleges at Kansas State University. CRMER has the potential to create unmatched opportunities for both students and partner organizations." Patrick Hessini, Vice President of Transportation and Distribution, CHS.

"I've been in commodities for 27 years. I have never seen the professionals that deal with commodity risk be in demand as they are today - - Not only on the front line of risk management, but also in the board rooms to make sure that these companies don't get involved in risks that they don't understand." Ed Prosser, Vice President & General Manager, Agriculture Trading, Gavlion.

"One of the disciplines that has been brought into program management across the defense industry over the last, I would say five to six years, in a much more aggressive manner than it has been historically, is the whole discipline of risk management.....For those of you in Engineering who have any desire to get into project management, I would encourage you to get smart on risk management. It has really helped to get ahead of the problems and address the issues in front." Wes Bush, CEO Northrup Grumman, Landon Lecture, Kansas State University, September 6, 2016.

"At Aon we advise business leaders around the world about the emerging risks they face and how to most effectively navigate our increasingly volatile global economy. In those conversations, we consistently hear that risks are more complex and interconnected than ever before.....Organizations of all sizes know that it is more critical than ever before to effectively manage and mitigate risk.....There is tremendous opportunity awaiting students at Kansas State and the Center for Risk Management is uniquely positioned to propel their careers, our industry, and our society forward." Greg Case, CEO Aon, Video Prepared by Aon for Kansas State University, September 2016.

Businesses need future employees who understand and know how to manage risk. After working closely with numerous industry partners for the past five years as well as collaboratively with the three core Center Departments of Agricultural Economics, Finance, and Industrial Manufacturing and Systems Engineering, the Center for Risk Management Education & Research has identified important skills needed for understanding advanced risk management. The curriculum in this Certificate was designed from that experience to prepare students for careers that involve managing risk.

Risk is dynamic and complex. Knowledge across a variety of industries is required to identify, accurately assess, and ultimately manage risk. The integrated coursework necessary for this Certificate from the Departments of Agricultural Economics, Finance, and Industrial Manufacturing and Systems Engineering will expose students to risk management across multiple disciplines. After completing this multidisciplinary Certificate, students will be uniquely prepared to manage complex interconnected risks.

Resource Implications

For Faculty: All courses outlined in the proposed sequence are current course offerings from the Departments of Agricultural Economics, Finance, and Industrial Manufacturing and Systems Engineering. This Certificate will not have any apparent effect on the Colleges' resources.

For Students: Obtaining the Certificate will require taking specific courses to meet the requirements of the Certificate. Several options exist for students to pursue the Certificate complementing their current major. The options include using the Certificate course as a specialty option in curriculum with such options, using restricted electives that these courses meet, or using the courses as free elective selections. For students enrolled in the three core Departments, many of the courses in the Certificate meet requirements or restricted elective options. Students from other majors have access to the Certificate program as well and how many additional credit hours may be required to meet the Certificate requirements would depend on the specific requirements of the particular major. Overall, the Certificate will be an attractive option that can be obtained with minimal additional course hours for the main targeted students.

Assessment Plan

Program Effectiveness

- Experiential learning opportunities will be tracked every semester to ensure Student Fellows completing the Certificate are getting exposure to a variety of industries that manage an array of diverse risks.
- Student grades from core and elective courses will be monitored and documented to measure comprehension of advanced risk management concepts, tools and applications.

- Student participation in Center for Risk Management activities including guest lectures, workshops, and industry visits will be tracked each semester as evidence of student exposure to experiential risk management education. Involvement in at least 75% of the total activities per semester is required for students to maintain status as a Fellow.
- Students will complete an exit survey upon graduation to measure effectiveness of the Certificate. Survey results will determine the value of experiential learning activities, relevance of required and elective coursework, and identify areas of need to better prepare students for careers in risk management.
- Ongoing feedback from Center industry partners will be collected to determine if Center activities and Certificate courses are preparing students with ample knowledge of risk management concepts. Center partners currently include: Aon, ADM, CattleFax, CHS, CME Group, Gavlion, ILS, INTL FCStone, Beachner Grain, Koch Industries, and Paragon Investments. Numerous other companies also sponsor student research projects. Advisory council members representing partnering firms meet twice a year with Center faculty and staff to evaluate program effectiveness and determine new initiatives to better prepare students to enter careers dealing with risk management.

Student Learning

Student Fellows completing the Certificate are required to complete a student-led research project in collaboration with a Kansas State University faculty member and industry partner. Successful completion of these projects includes delivery to the sponsoring company a written final report, files of any data used in the study, a file containing all references used in the study, and an oral presentation of results to the company. Successful delivery and completion of these tasks will be monitored by the Center and sponsoring company feedback will be solicited on the effectiveness and value of the project.

Student Learning Outcomes

- Demonstrate effective written communication skills fit for a professional work environment
- Produce and deliver an oral presentation to industry partners in a clear and appropriate format
- Demonstrate interpersonal skills and ability to work effectively within a diverse research team
- Demonstrate understanding of risk, economics, finance, and management
- Develop and use appropriate quantitative decision tools to identify and measure risk
- Apply understanding of risk to identify solutions problems and questions found in research topic

Impact

The Departments of Finance (College of Business Administration) and Industrial and Manufacturing Systems Engineering (College of Engineering) are proposing this certificate simultaneously in their Colleges. A support agreement has been developed

and signed by Dr. Allen Featherstone – Agricultural Economics Department Head, Dr. Eric Higgins - Finance Department Head, Dr. Bradley Kramer - Industrial and Manufacturing Systems Engineering Department Head, Dr. John Floros – Dean of the College of Agriculture, Dr. Kevin Gwinner – Dean of the College of Business Administration, Dr. Darren Dawson – Dean of the College of Engineering.

Requested Effective Date

Fall 2017

Support Agreement for Certificate in Integrated Risk Management

September 14, 2016

Administration of Certificate

This Support Agreement documents the collaborative support of the three Departments and associated Colleges for the proposed undergraduate Certificate in Integrated Risk Management (Certificate description is appended to this Support Agreement). The Certificate will be under management responsibility of the Center for Risk Management Education & Research (CRMER).

The CRMER is a multidisciplinary program established in 2012. The Center mission is to engage students and industry partners in innovative education and research to advance risk management skills and knowledge. Since inception, the Center has been a collaborative effort of the Colleges of Agriculture (Agricultural Economics - AGECE), Business Administration (Finance - FINAN), and Engineering (Industrial and Manufacturing Systems Engineering - IMSE). A major emphasis of the Center has been devoted to student experiential education in a partnership with industry. The Center is unique in its multidisciplinary reach that includes undergraduate and graduate students, open to all majors with students from 14 different majors having been Student Fellows, and having committed industry partners engaged in supporting the Center. The CRMER Director and Program Coordinator will manage the Certificate program with assistance from the University Certificate Advisory Committee. The CRMER will oversee adjustments to the Certificate requirements as needed, work with academic advisors on program requirements and opportunities for students from any major, monitor student progress, work with appropriate University administration and staff to secure appropriate documentation of students completing the program, and provide assessment of outcomes from the program.

Budget Support for Certificate

The Certificate packages existing core courses already being taught in Agricultural Economics, Finance, and Industrial Manufacturing and Systems Engineering and does not require any new courses or sections to be taught. All of the courses included in the Certificate have been offered on a continuous basis and are expected to continue to be offered in the foreseeable future. As such, no added responsibility for new courses are required for the Certificate. If course availability becomes an issue, the CRMER and the University Certificate Advisory Committee will work directly with the Department of the course involved to determine the optimal solution. The CRMER has industry funding that can be used to help provide financial support for specific instructor needs if necessary to meet the needs of the Certificate. The CRMER will administer the program with existing staff and the Center has ample funding to support the administration of the Certificate program. If funding for the Center were at any future time not sufficient to manage the program, the three respective Departments directly engaged in the CRMER would make a collective decision on how to best manage the Certificate. Overall, new instructional and management costs associated with the Certificate are minimal.

Certificate Advisory Committee

The Certificate will have an Interdisciplinary University Advisory Committee comprised of the CRMER Director and Program Coordinator and one or two tenure track faculty members from each of the three academic Departments collaborating on the program (AGEC, FINAN, and IMSE) as appointed by their respective Department Heads. The Advisory Committee will review the Certificate program relative to its effectiveness at accomplishing intended outcomes, provide regular input to the CRMER Director for suggested modifications, and serve as a resource for the Certificate in their respective Colleges. The CRMER external Advisory Council, which meets twice annually, will also regularly review the Certificate for providing value to graduates they hire from the program.

Department and College Administrative Support

The multidisciplinary Certificate in Integrated Risk Management is endorsed and supported by the Colleges of Agriculture, Business Administration, and Engineering and the core collaborating Departments in these respective Colleges; Agricultural Economics, Finance, and Industrial and Manufacturing Systems Engineering.



Dr. John Floros
Dean, College of Agriculture



Dr. Kevin Gwinner
Dean, College of Business
Administration



Dr. Darren Dawson
Dean, College of Engineering



Dr. Allen Featherstone
Head, Agricultural Economics



Dr. Eric Higgins
Head, Finance



Dr. Bradley Kramer
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