

Missouri State.

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Curricular Action Workflow

Missouri State > Computer Services - MIS > Curricular Action Workflow > CAW - New Program Proposal Form

New Program Proposal FormSubmitted on 08/22/2016 by Kenneth Vollmar (Kenvollmar@missouristate.edu).

This form is to be used for internal Missouri State approval of any proposal for a new program involving two or more courses, including any new graduate program, new undergraduate major (whether comprehensive or non-comprehensive), new option within an existing program (whether graduate or undergraduate), new minor, new certificate, or new certification program.

New graduate programs, new undergraduate majors, and certificate programs involving more than 18 credit hours require approval by the CBHE as well as approval through the Missouri State curricular process. CBHE applications for such programs are processed through the Office of Institutional Research. All proposals for new programs requiring CBHE approval should progress through the Missouri State curricular process accompanied by a draft of the required CBHE documentation.

Department:

Computer Science

Proposed Program Title:

Computer Science

Choose One:

- Major (Non-Comprehensive/Graduate Program) Minor Academic Rules
 Comprehensive Major Certificate Other
 Option Certification

Select Degree Type (or Select Graduate Certificate or Undergraduate Certificate):

MS - Master of Science

General Education Courses Required:

N/A

Total Hours: 0

General Education Courses Recommended:

1

N/A

Total Hours: 0

Requirements (including Admission) and Limitations for Specific Degree/Program:

Thesis track: total 30 credit hours.
Project track: total 30 credit hours.
Course-only track: total 30 credit hours.

Total Hours: 30

Courses Required in Department:

CSC 701(1), 702(2)

Total Hours: 3

Courses Required in Other Departments:

None

Total Hours: 0

Prerequisites for Required Courses:

Admission to MS Computer Science program

Recommended Electives in Department:

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Select from the following, subject to specific restrictions described in graduation requirements.

Course ID	Course Title	Credits
CSC 611	Algorithms	3
CSC 612	Databases	3
CSC 613	System Fundamentals	3
CSC 621	Compiler Construction	3
CSC 625	Computer Graphics	3
CSC 626	Methods of Optimization	3
CSC 635	Data Mining	3
CSC 640	Introduction to Artificial Intelligence	3
CSC 645	Computer Speech Music and Images	3
CSC 655	Software Quality Assurance and Project Management	3
CSC 665	Computer Networks	3
CSC 667	Mobile Computing Applications	3
CSC 687	Computing for Bioinformatics	3
CSC 690	Advanced Topics In Computer Science	3
CSC 696	Special Readings	3
CSC 701	Seminar I	1
CSC 702	Seminar II	2
CSC 735	Data Analytics	3
CSC 742	Evolutionary Computing	3
CSC 745	Adv Multimedia Programming	3
CSC 746	Human Computer Interaction	3
CSC 747	Multimedia Communications	3
CSC 765	Internet of Things	3
CSC 796	Science Internship	1-6
CSC 798	Research In Computer Science	1-4
CSC 799	Thesis	1-6

Total Hours: 27

Recommended Electives in Other Departments:

None

Total Hours: 0

Limitations on Electives:

Up to 6 credit hours of coursework from other departments may be allowed in these electives if approved by the Computer Science Dept.

Please attach the following documents: (only one file may be attached for each requirement; accepts file types of PDF, DOC or DOCX)

1. Statement of Rationale: Attached
2. Estimated costs for first five years: Attached
3. Complete catalog description (including new courses and course changes pending approval): Attached
4. CBHE Application (if applicable): Attached

*Note: For new programs requiring CBHE approval, CBHE forms NP, PS, and PG will satisfy #1 and CBHE form FP will satisfy #2.

What is the date that this new program was approved by departmental or program faculty? (MM/DD/YYYY)

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06/15/2016

Current Status:

Grad Council Review

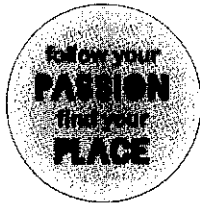
Proposal Progress:

08/22/2016 - Submitted by Department Head (Kenneth Vollmar)

08/23/2016 - Reviewed by Dean (Tamera Jahnke)

Review Comments:

08/23/2016 - Dean Review - Tamera Jahnke - The department faculty worked on this proposal all summer. Great thought went into all aspects.



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I. New Program Proposal (form NP)

Sponsoring Institution(s): Missouri State University

Program Title: Computer Science

Degree/Certificate: Master of Science

Options: Thesis, Non-Thesis

Delivery Site(s): Springfield, MO

CIP Classification: 11.07

Implementation Date: Fall 2017

Cooperative Partners: (Not Applicable)

Expected Date of First Graduation: Spring 2019

AUTHORIZATION

Name/Title of Institutional	Officer Signature	Date
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Person to Contact for More	Information	Telephone
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Individual(s) Responsible for Success of Program < e.g., chair, dean, director >:

- II. Table of contents (optional)
- III. Executive Summary
- IV. Introduction

The curriculum of this proposed MS CS degree is focused on modern, applied needs of computation for business and social and personal applications. The curriculum will provide students with a practical, workforce-ready skill set for modern needs.

V. Alignment with Mission and Goals

Missouri State University has recently completed a Long Range Plan 2016-2021, which includes the following statements:

- *Missouri State University will provide students with choices from an array of academic programs, research options and opportunities to connect in meaningful ways, all of which will help them succeed and fulfill their dreams.*
- *Missouri State is committed to initiating new academic programs to meet societal needs, embracing new delivery systems to respond to student desires and addressing requirements of employers — all without compromising academic rigor and integrity.*
- *Goal: Expand graduate programs to serve distinctive regional, national and international needs.*

The proposed MS Computer Science program has the support of Missouri State University administration and faculty, it is consistent with the university's goals.

1. Need:

A. Student Demand:

- i. Estimated enrollment each year for the first five years for full-time and part-time students (Please complete table below)

Form SE	Year				
	1	2	3	4	5
Full Time	50	100	100	100	100
Part Time	5	5	5	5	5
Total	55	105	105	105	105

- ii. Will enrollment be capped in the future?

As we start this new program we would admit 50 students/year with a cap of 105 continuing students annually. This would allow us to continue to offer our quality undergraduate program (about 325 undergraduate majors). The BS Computer Science program option is ABET-accredited, and the new BS Software

(1)

New Program Proposal for MDHE

Development program option (just starting in fall of 2016) has been developed to help increase the number of BS graduates.

As we assess the demands and needs of the undergraduate and graduate programs in CS, it is possible that enrollment may grow, but all graduate programs must be balanced with undergraduate enrollment.

- iii. Please provide a rationale regarding how student enrollment projections were calculated.

Student enrollment was based on our analysis of market and societal demand (see below) and our institutional resources. Other institutions in the Midwest region have seen very large enrollments over the past few years in Computer Science MS programs. Interest is high from international students, and MSU international recruiters have indicated that we could easily fill a program with at least one hundred students.

The evidence discussed in the following section documents that we will have sufficient student demand to enroll at least 50 new students per year, and our existing and new departmental resources (see Section 5) will allow us to support 100 graduate students while maintaining our quality, accredited undergraduate program.

B. Market Demand:

- i. National, state, regional, or local assessment of labor need for citizens with these skills.

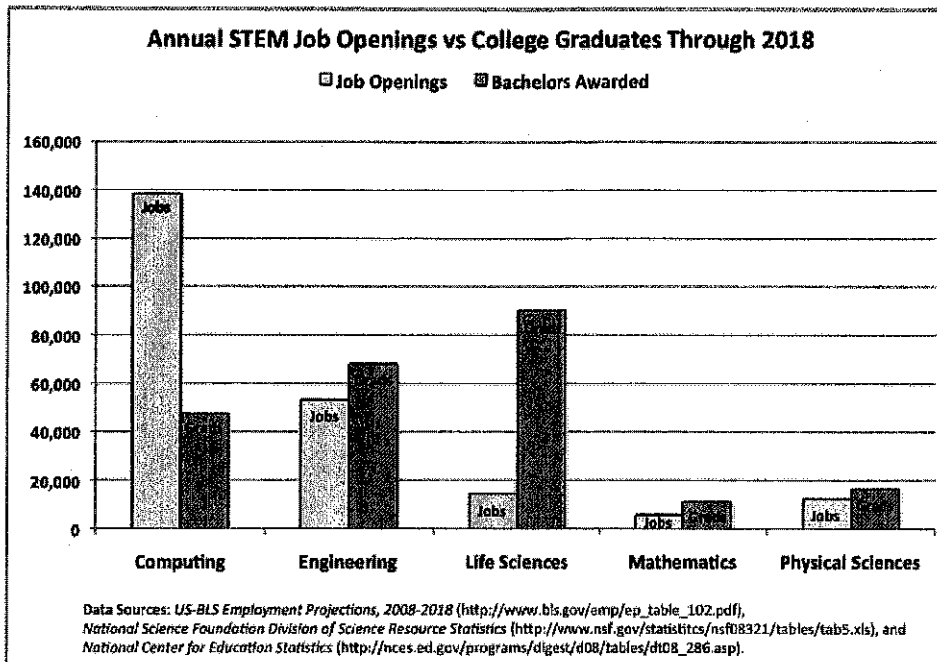
"On a per-department basis, CS master's degree production in U.S. Computer Science departments rose nearly 25% in 2014-15. . . Both public and private departments reported large increases. . . For departments at public institutions, this represents the fourth straight year of increases. This suggests further increased production of master's degrees in the next couple of years." Source: 2015 Taulbee Survey, p. 12-16.

"In 2012-13, American institutions conferred more than 751,000 [Master's] degrees, according to the Department of Education. That was a 45-percent increase from the 2002-03 academic year. . . Math, computer science, engineering, and health sciences are doing well, . . . with international students driving a lot of the growth."

Source: Master's-Degree Programs Specialize to Keep Their Sheen, Chronicle of Higher Education, September 14, 2015.

These data show that there are consistent, increasing demands for master's degrees in Computer Science.

Employment data from a variety of sources (US Bureau of Labor Statistics, 2015; Executive Office of the President of the United States, 2012) indicate a major increase in the demand for Computer Science professionals.



In Missouri, two of the three occupations with the highest number of 2015 job postings were related to software development, as were the six STEM occupations with the highest projected number of 2012-2022 openings.

Source: Missouri Economic Research and Information Center (MERIC), "2015 Missouri Economic Report," "STEM Occupations Top Openings, 2012-2022."

In the Ozark region, professional, scientific, and technical services accounted for the majority of new businesses established. Many new businesses focused on computer system design services and management as well as technical consulting services.

Source: 2015 Missouri Economic Report, from Missouri Economic Research and Information Center (MERIC), Missouri Department of Economic Development. https://www.missourieconomy.org/pdfs/2015_mo_economic_report.pdf

C. Societal Need:

- i. General needs which are not directly related to employment

In addition to the positive outlook for employment, positions in Computer Science pay extremely well, providing opportunities for Missouri and U.S. workers to embark on dynamic careers, enjoy a good standard of living, and contribute to the innovation that drives the country's economic growth.

- ii. Support letter(s) from potential employers (optional; append to proposal)

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- ii. Support letter(s) from community leaders (optional; append to proposal)

D. Methodology used to determine "A" and "B" and "C" above.

We reviewed economic trends and forecasts as noted at each paragraph above and had direct correspondence with other universities, especially Northwest Missouri State University, University of Central Missouri, Missouri University of Science & Technology, Wichita State University, Southern Illinois University-Edwardsville, and University of Northern Iowa.



2. Program Structure (form PS):

A. What are the total credits required for graduation? This should match C+D+E below.

30 credit hours

B. Are there any residency requirements?

No. (There are no current plans to offer online courses, so residency and in-person attendance is implicitly required.)

Total Credits by Category

C. General Education courses: Total credits required: None (not applicable)

D. Major requirements (including required courses, electives, thesis)

E. Total credits required: 30

List of classes that contribute to this total:

Course ID	Course Title	Credits
CSC 601	Discrete Math	3
CSC 602	Data Structures	3
CSC 611	Algorithms	3
CSC 612	Databases	3
CSC 613	System Fundamentals	3
CSC 621	Compiler Construction	3
CSC 625	Computer Graphics	3
CSC 626	Methods of Optimization	3
CSC 635	Data Mining	3
CSC 640	Introduction to Artificial Intelligence	3
CSC 645	Computer Speech Music and Images	3
CSC 655	Software Quality Assurance and Project Management	3
CSC 665	Computer Networks	3
CSC 667	Mobile Computing Applications	3
CSC 687	Computing for Bioinformatics	3
CSC 690	Advanced Topics in Computer Science	3
CSC 696	Special Readings	3
CSC 701	Seminar I	1
CSC 702	Seminar II	2
CSC 735	Data Analytics	3
CSC 742	Evolutionary Computing	3
CSC 745	Adv Multimedia Programming	3
CSC 746	Human Computer Interaction	3
CSC 747	Multimedia Communications	3
CSC 765	Internet of Things	3
CSC 796	Science Internship	1-6



New Program Proposal for MDHE

CSC 798	Research in Computer Science	1-4
CSC 799	Thesis	1-6

Thesis track, total 30 credit hours. At least 15 credit hours must be at the 700-level.

3 credit hours	Required courses CSC 701(1), 702(2)
21 credit hours	Elective courses, such that at least 15 credit hours are at the 700-level, and that a maximum of 9 credit hours are in CSC 796, 798, and 799 combined. (Note: Up to 6 credit hours of coursework from other departments may be allowed in these electives if approved by the Computer Science Dept.)
6 credit hours	CSC 799 Thesis

Project track, total 30 credit hours. At least 15 credit hours must be at the 700-level.

3 credit hours	Required courses CSC 701(1), 702(2)
24 credit hours	Elective courses, such that at least 15 credit hours are at the 700-level, and that a maximum of 9 credit hours are in CSC 796, 798, and 799 combined. (Note: Up to 6 credit hours of coursework from other departments may be allowed in these electives if approved by the Computer Science Dept.)
3 credit hours	CSC 798 Project

Course-only track (non-thesis), total 30 credit hours. At least 15 credit hours must be at the 700-level.

3 credit hours	Required courses CSC 701(1), 702(2)
30 credit hours	Elective courses, such that at least 15 credit hours are at the 700-level, and that a maximum of 9 credit hours are in CSC 796, 798, and 799 combined. (Note: Up to 6 credit hours of coursework from other departments may be allowed in these electives if approved by the Computer Science Dept.)

Each Fall Semester the following courses will be offered for students: CSC625(3), CSC655(3), CSC665(3), CSC667 (3), CSC701(1), CSC735(3), CSC742(3), CSC745(3), CSC796, CSC 798 and CSC799. (First year students will primarily enroll in 600 level courses while second year students will primarily enroll in 700 level courses.)

Each Spring Semester the following courses will be offered for students: CSC615(3), CSC635(3), CSC645(3), CSC702(2), CSC746(3), CSC747(3), CSC765(3), CSC796, CSC798, CSC799. (First year students will primarily enroll in 600 level courses while second year students will primarily enroll in 700 level courses.)



F. Free elective credits: See descriptions of tracks provided above

G. Describe any requirements for thesis, internship or other capstone experience.

MS program consists of three options: thesis, project, and course-only. An internship is optional, not required.

A required exit exam will provide a capstone experience.

H. Describe any unique features such as interdepartmental cooperation.

Not applicable.



3. Program Characteristics and Performance Goals (form PG). For collaborative programs, responsibility for program evaluation and assessment rests with the institution(s) granting the degree(s).

Although all of the following guidelines may not be applicable to the proposed program, please carefully consider the elements in each area and respond as completely as possible in the format below. Quantification of performance goals should be included wherever possible.

A. Student Preparation

Any special admissions procedures or student qualifications required for this program which exceed regular university admissions, standards, e.g., ACT score, completion of core curriculum, portfolio, personal interview, etc. Please note if no special preparation will be required.

The types of admissions GPA criteria for this program are not unusual and do not which exceed typical university admissions standards, but since they are specific values they are listed here.

Admissions criteria:

There are two types of admission.

a. *Accelerated admission*

The Accelerated Master's Program option provides an opportunity for outstanding undergraduate students to begin their graduate course work during their senior year. To be eligible to apply for admission to this program, an MSU undergraduate student must be pursuing a BS in Computer Science or closely related field such as Math or Physics, have completed CSC 232 and MTH 215, and have a GPA of 3.5 or higher in all courses required for the undergraduate major. An eligible student may apply for admission during the second semester of the junior year.

If accepted into the accelerated program, up to a maximum of 9 hours of 600/700 level CSC courses taken after admission into the program may be given credit for both undergraduate and graduate programs.

A student is fully admitted to the Graduate College upon completion of the requirements for the baccalaureate degree. All requirements for the master's program must be met for graduation from the master's program.

Before enrolling in a course to be counted as both undergraduate and graduate credit and to count the course toward the master's degree, an undergraduate student must be accepted into the accelerated program and receive prior approval from the graduate program advisor, department head of the undergraduate program, and the dean of the Graduate college. Acceptance into the program and all approvals must be completed



prior to the end of the Change of Schedule Period for the course(s). See the Graduate College for further information.

b. Standard admission

An applicant will be considered for standard admission with a BS in Computer Science or closely related field (e.g., Computer Engineering, Math, Electrical Engineering, Software Engineering) and undergraduate-level courses equivalent to MSU CSC 232 and MTH 215 from an accredited university.

An applicant lacking undergraduate-level courses equivalent to MSU CSC 232 and MTH 215 may be admitted with the additional requirement that he or she complete those undergraduate courses' respective graduate equivalents, CSC 602 and 601 before enrolling in graduate courses that will count toward the master's degree. The need for CSC 602 and 601 will increase required credit hours past 30 and must be completed with a grade of B or better.

GPA and test score requirements for admission:

- a. *Undergraduate GPA of 3.0 on a 4.0 scale, or 3.0/4.0 in the most recent 60 credit hours*
- b. *GRE: a combined score of 305 on the verbal and quantitative sections of the Graduate Record Examination.*
- c. *English language communication: International applicants whose native language is not English and do not have a U.S. degree are required to take the TOEFL or IELTS. Required score on the TOEFL: A minimum score of 550 on the paper version, 213 on the computer-based, or 79 on the internet-based TOEFL. Required score on the IELTS: A minimum score of 6.0. The English language communication requirement is waived for applicants who meet one of the following: (i) are native English speakers or (ii) have completed a minimum of 60 semester credit hours from an accredited college or university in the U.S.*

Characteristics of a specific population to be served, if applicable.

Not applicable

B. Faculty Characteristics

Any special requirements (degree status, training, etc.) for assignment of teaching for this degree/certificate.

The Department of Computer Science accepts the criteria, as determined by the Graduate Council, for appointment to the Graduate Faculty:

- 1. *Terminal degree in Computer Science or a related field (PhD or equivalent)*
- 2. *Minimum of three scholarly publications (or equivalent) in hand*
- 3. *Approval by majority vote of the Department of Computer Science Graduate Faculty*

The department further recognizes that, in the rapidly changing field of computer science, conferences have become an accepted primary means of disseminating knowledge. Therefore, the department makes no distinction between peer-reviewed papers published in conference proceedings and journal publications.

Estimated percentage of credit hours that will be assigned to full time faculty. Please use the term "full time faculty" (and not FTE) in your descriptions here.

We estimate that all of MS CS graduate program credit hours will be assigned to full time faculty; however, adjunct faculty with appropriate credentials may occasionally offer courses.

Expectations for professional activities, special student contact, teaching/learning innovation.

Each faculty member is expected to allocate time and effort to a wide range of teaching, research/scholarship, and service obligations that promote the mission and goals of the University, college, and department. These expectations are fully described in the Computer Science Dept. Promotion and Tenure Plan.

Teaching effectiveness by faculty is vital to the development and enhancement of the intellectual quality and academic integrity of the University. Teaching activities include high quality instruction at the Undergraduate and Graduate level, Instructional Development, attendance at conferences and workshops or other professional development activities, innovations in the effective use and development of instructional technology and resources to promote active student learning, academic advising services, guidance and supervision of student projects, theses, internships, or co-operative work experiences, involvement in student organizations and activities promoting faculty-student interaction, involvement in activities to promote departmental programs and services to prospective students, and other pedagogical activities that contribute to effective teaching:

Research activities in the MSU Computer Science Department are expected to contribute to the theory or practice in the broadly-defined field of computer science through four recognized forms of scholarship: discovery, integration, application and teaching. We believe that students benefit from knowledge of areas of current topics of research. Whenever possible, faculty members should offer students an opportunity to participate in their research activities.

The department defines service as performance of departmental, college, university, and professional activities which fall into three domains: involvement in the University's shared governance, professional expertise shared with the internal and external community, and contributions to a faculty member's profession.



C. Enrollment Projections (repeat section 1.A.i)

Estimated enrollment each year for the first five years for full-time and part-time students (Please complete table below)

	Year 1	Year 2	Year 3	Year 4	Year 5
Full Time	50	100	100	100	100
Part Time	5	5	5	5	5
Total	55	105	105	105	105

Student FTE majoring in program by the end of five years: estimated 105

Percent of full time and part time enrollment by the end of five years: estimated 95% full time, 5% part time

D. Student and Program Outcomes

Number of graduates per annum at three and five years after implementation:
Estimated 50

Special skills specific to the program.

The Student Outcomes of the MS CS degree program are that graduates are expected to be able to:

- *Design algorithms to solve specific problems*
- *Present technical information to an audience*
- *Apply techniques from CS research to develop software solutions*
- *Conduct research in computer science*

Proportion of students who will achieve licensing, certification, or registration:

Licensing, certification, or registration are not common for software development professionals. The estimated number of students is zero.

Performance on national and/or local assessments, e.g., percent of students scoring above the 50th percentile on normed tests; percent of students achieving minimal cut-scores on criterion-referenced tests. Include expected results on assessments of general education and on exit assessments in a particular discipline as well as the name of any nationally recognized assessments used.

Not applicable.

Placement rates in related fields, in other fields, unemployed.

Demand for computer software professionals is high, as job demand in CS far exceeds the number of graduates. The estimated placement rate in CS-related fields is 95%, in other fields 5%, unemployed 0% (See Demand Section above).

Transfer rates, continuous study.



Transfer rates are expected to be low because of the relatively short time to completion of the MS degree program.

E. Program Accreditation

MSU Computer Science undergraduate program has been accredited by the Computing Commission of ABET, www.abet.org, since 1989 (including accreditor mergers).

ABET does not offer an accreditation process for MS degrees, and we do not expect to seek other accreditation for the MS CS degree. Nonetheless, we expect to use the same practices in development, delivery, and assessment of the graduate degree program.

F. Alumni and Employer Survey

- Expected satisfaction rates for alumni, including timing and method of surveys
- Expected satisfaction rates for employers, including timing and method of surveys

Similarly to the methods used in our ABET-accredited undergraduate program, we will set an initial goal for satisfaction rate outcomes, collect assessment data at regular intervals, analyze the data, and take appropriate action in order to seek continuous improvement.

Initially, we will set goals of 80% satisfaction rates for alumni of this MS program and 80% satisfaction rates for employers of graduates. Our existing process for continuous improvement is a two-year assessment cycle, allowing sufficient time between surveys for changes to take effect. We will conduct biannual online surveys of graduates and employers to obtain outcome satisfaction data.

4. No Program Specific Accreditation: If accreditation is not a goal for this program, provide a brief rationale for your decision. If the institution is seeking program accreditation, provide any additional information that supports your program.

MSU Computer Science undergraduate program has been accredited by the Computing Commission of ABET, www.abet.org, since 1989 (including accreditor mergers).

ABET does not offer an accreditation process for MS degrees, and we do not expect to seek accreditation for the MS CS degree. Nonetheless, we expect to use the same practices in development, delivery, and assessment of the graduate degree program.

5. Will this program be offered primarily at an off-campus location? If yes, complete this section. If no, skip to item 9.

NO

6. Institutional Characteristics: Please describe succinctly why your institution is particularly well equipped or well suited to support the proposed program.

Missouri State University is a comprehensive institution offering undergraduate and graduate programs, and has a statewide legislative mandate in public affairs.

Missouri State University has recently completed a Long Range Plan 2016-2021, which includes the following statements:

- Missouri State University will provide students with choices from an array of academic programs, research options and opportunities to connect in meaningful ways, all of which will help them succeed and fulfill their dreams.*
- Missouri State is committed to initiating new academic programs to meet societal needs, embracing new delivery systems to respond to student desires and addressing requirements of employers — all without compromising academic rigor and integrity.*
- Goal: Expand graduate programs to serve distinctive regional, national and international needs.*

MSU Computer Science undergraduate program has been accredited by the Computing Commission of ABET, www.abet.org, since 1989 (including accreditor mergers). Although ABET does not offer an accreditation process for MS degrees, we expect to use the same practices in development, delivery, and assessment of the graduate degree program.

The proposed MS Computer Science program has the support of Missouri State University administration and faculty, and supports the university goals.

The region of southwest Missouri has a developing number of companies and businesses with a primary focus or reliance upon software development. Springfield is the third-largest city in the state, and there is no existing MS-level CS program to support the career development and further-education needs of area CS professionals.

1. Financial Projections (for public institutions only; Form FP): Please complete table at the end of this document. Additional narrative may be added as needed. If more than one institution is providing support, please complete a separate table for each institution.

Financial information (Section 5)

	Year 1	Year 2	Year 3	Year 4	Year 5
1. Expenditures					
A. One-time:					
New/renovated space	400,000				
Equipment	100,000				
Library					
Consultants					
Other					
Total for One-time Expenditures	500,000				
B. Recurring:					
Faculty	125,000	225,000	305,000	305,000	305,000
Staff (6 TA's)	72,000	72,000	72,000	72,000	72,000
Benefits	44,000	78,000	106,000	106,000	106,000
Equipment		5,000	5,000	5,000	5,000
Library	22,150	22,150	22,150	22,150	22,150
Other		15,000	20,000	20,000	20,000
Total for Recurring Expenditures	291,000	445,000	558,000	558,000	558,000
TOTAL (A + B)	791,000	791,000			
2. Revenues					
*State Aid - CBHE	0	0	0	0	0
*State Aid - DESE	0	0	0	0	0
Tuition/Fees	400,00	800,000	800,000	800,000	800,000
Institutional/Resources	500,000				
Other					
TOTAL REVENUES	109,000	109,000	355,000	242,000	242,000

Assumptions: This program will be funded by the tuition dollars paid by students. In year one this chart assumes a minimum of 50 students enrolled and by year two a minimum of 100 students will be enrolled. This chart does not include increases in salary or tuition over the five year time period but one might assume at least CPI increases for both in each year during the time period.

Library Resources – A full subscription is required for this new graduate program that does not currently exist on campus. The cost estimate is currently approximately \$22,150.

Year 1 – 2017-2018 – A new department head will be hired for the department adding one additional faculty line.



Year 2 – 2018-2019 – A new faculty member will be hired for the department adding one additional faculty line

Year 3 (or when the program truly reaches 100 students) - A new faculty member will be hired for the department.

*Please provide a brief description of the nature of the state aid. Is "new" money requested or is "old" money going to be used? What is the nature of the "old" money?

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Department: Computer Science

Proposed Program Title: Computer Science (M. S., Master's Degree)

Requirements (including Admission) and Limitations for Specific Degree/Program:

Total Hours:

Thesis track: total 30 credit hours.

Project track: total 30 credit hours.

Course-only track: total 30 credit hours.

Admissions criteria:

1. There are two types of admission.

a. *Accelerated admission*

The Accelerated Master's Program option provides an opportunity for outstanding undergraduate students to begin their graduate course work during their senior year. To be eligible to apply for admission to this program, an MSU undergraduate student must be pursuing a BS in Computer Science or closely related field such as Math or Physics, have completed CSC 232 and MTH 215, and have a GPA of 3.5 or higher in all courses required for the undergraduate major. An eligible student may apply for admission during the second semester of the junior year.

If accepted into the accelerated program, up to a maximum of 9 hours of 600/700 level CSC courses taken after admission into the program may be given credit for both undergraduate and graduate programs.

A student is fully admitted to the Graduate College upon completion of the requirements for the baccalaureate degree. All requirements for the master's program must be met for graduation from the master's program.

Before enrolling in a course to be counted as both undergraduate and graduate credit and to count the course toward the master's degree, an undergraduate student must be accepted into the accelerated program and receive prior approval from the graduate program advisor, department head of the undergraduate program, and the dean of the Graduate college. Acceptance into the program and all approvals must be completed prior to the end of the Change of Schedule Period for the course(s). See the Graduate College for further information.

b. *Standard admission*

An applicant will be considered for standard admission with a BS in Computer Science or closely related field (e.g., Computer Engineering, Math, Electrical Engineering, Software Engineering) and undergraduate-level courses equivalent to MSU CSC 232 and MTH 215 from an accredited university.

An applicant lacking undergraduate-level courses equivalent to MSU CSC 232 and MTH 215 may be admitted with the additional requirement that he or she complete those undergraduate courses' respective graduate equivalents, CSC 602 and 601

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before enrolling in graduate courses that will count toward the master's degree. The need for CSC 602 and 601 will increase required credit hours past 30 and must be completed with a grade of B or better.

- 2. GPA and test score requirements for admission:
 - a. Undergraduate GPA of 3.0 on a 4.0 scale, or 3.0/4.0 in the most recent 60 credit hours
 - b. GRE: a combined score of 305 on the verbal and quantitative sections of the Graduate Record Examination.
 - c. English language communication: International applicants whose native language is not English and do not have a U.S. degree are required to take the TOEFL or IELTS. Required score on the TOEFL: A minimum score of 550 on the paper version, 213 on the computer-based, or 79 on the internet-based TOEFL. Required score on the IELTS: A minimum score of 6.0. The English language communication requirement is waived for applicants who meet one of the following: (i) are native English speakers or (ii) have completed a minimum of 60 semester credit hours from an accredited college or university in the U.S.

Degree requirements:

1. Required courses

- a. All students must have either previously completed undergraduate courses CSC 325, 335, and 344, or as part of graduate coursework those undergraduate courses' respective graduate equivalents, CSC 602, 604, and 606. A maximum of 6 credit hours among CSC 602, 604, and 606 may be applied to the MS degree. (If it is necessary to take all three courses, one of the courses will not be applied to the MS degree.) If any of the courses CSC 325, 335, or 344 have previously been taken as undergraduate courses, then their respective graduate equivalents may not be repeated for graduate credit.
- b. CSC 701(1) Seminar I
- c. CSC 702(2) Seminar II.

2. Degree tracks

Complete one of the following degree tracks.

- a. Thesis track, total 30 credit hours. At least 15 credit hours must be at the 700-level.

3 credit hours	Required courses CSC 701(1), 702(2)
21 credit hours	Elective courses, such that at least 15 credit hours are at the 700-level, and that a maximum of 9 credit hours are in CSC 796, 798, and 799 combined. (Note: Up to 6 credit hours of coursework from other departments may be allowed in these electives if approved by the Computer Science Dept.)
6 credit hours	CSC 799 Thesis

- b. Project track, total 30 credit hours. At least 15 credit hours must be at the 700-level.

3 credit hours	Required courses CSC 701(1), 702(2)
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24 credit hours	Elective courses, such that at least 15 credit hours are at the 700-level, and that a maximum of 9 credit hours are in CSC 796, 798, and 799 combined. (Note: Up to 6 credit hours of coursework from other departments may be allowed in these electives if approved by the Computer Science Dept.)
3 credit hours	CSC 798 Project

- c. Course-only track (non-thesis), total 30 credit hours. At least 15 credit hours must be at the 700-level.

3 credit hours	Required courses CSC 701(1), 702(2)
30 credit hours	Elective courses, such that at least 15 credit hours are at the 700-level, and that a maximum of 9 credit hours are in CSC 796, 798, and 799 combined. (Note: Up to 6 credit hours of coursework from other departments may be allowed in these electives if approved by the Computer Science Dept.)

3. Exit exam

An exit exam is required. There are no credit hours associated with the exit exam.

4. Progress toward degree completion

- a. No course with a grade "C-" or below may be applied toward the MS CS. A graduate student becomes ineligible for graduate study if more than 9 semester hours of "C+" or lower are earned in graduate courses taken in the degree program. (See <http://graduate.missouristate.edu/catalog/Grade-Requirements.htm>)
- b. MSU has high expectations for academic honesty and the completion of work by the student who claims that work. These expectations are described in the document "STUDENT ACADEMIC INTEGRITY POLICIES AND PROCEDURES," http://graduate.missouristate.edu/assets/policy/Op3_01_Academic-Integrity-Policies-and-Procedures-07-28-2014.pdf. The penalties for misrepresentation of work completed may include:
 - denying credit on an assignment and/or examination;
 - requiring additional assignments and/or examinations;
 - lowering the student's course grade;
 - issuing a failing course grade ("F");
 - issuing a failing course grade of "XF", which indicates that this failing grade was due to academic dishonesty.

1

A. Total credits required: 30

List of classes that contribute to this total:

Course ID	Course Title	Credits	Notes
CSC 601	Discrete Math	3	New parallel course
CSC 602	Data Structures	3	New parallel course
CSC 611	Algorithms	3	New parallel course
CSC 612	Databases	3	New parallel course
CSC 613	System Fundamentals	3	New parallel course
CSC 621	Compiler Construction	3	
CSC 625	Computer Graphics	3	
CSC 626	Methods of Optimization	3	
CSC 635	Data Mining	3	
CSC 640	Introduction to Artificial Intelligence	3	
CSC 645	Computer Speech Music and Images	3	
CSC 655	Software Quality Assurance and Project Management	3	
CSC 665	Computer Networks	3	
CSC 667	Mobile Computing Applications	3	
CSC 687	Computing for Bioinformatics	3	
CSC 690	Advanced Topics in Computer Science	3	
CSC 696	Special Readings	3	
CSC 701	Seminar I	1	New course
CSC 702	Seminar II	2	New course
CSC 735	Data Analytics	3	New course
CSC 742	Evolutionary Computing	3	New course
CSC 745	Adv Multimedia Programming	3	New course
CSC 746	Human Computer Interaction	3	New course
CSC 747	Multimedia Communications	3	New course
CSC 765	Internet of Things	3	New course
CSC 796	Science Internship	1-6	
CSC 798	Research in Computer Science	1-4	
CSC 799	Thesis	1-6	

Catalog descriptions of new graduate courses are contained separately in each individual new course proposal.

①

I. New Program Proposal (form NP)

Sponsoring Institution(s): Missouri State University

Program Title: Computer Science

Degree/Certificate: Master of Science

Options: Thesis, Non-Thesis

Delivery Site(s): Springfield, MO

CIP Classification: 11.07

Implementation Date: Fall 2017

Cooperative Partners: (Not Applicable)

Expected Date of First Graduation: Spring 2019

AUTHORIZATION

Name/Title of Institutional	Officer Signature	Date
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Person to Contact for More	Information	Telephone
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Individual(s) Responsible for Success of Program < e.g., chair, dean, director >:

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- II. Table of contents (optional)
- III. Executive Summary
- IV. Introduction

The curriculum of this proposed MS CS degree is focused on modern, applied needs of computation for business and social and personal applications. The curriculum will provide students with a practical, workforce-ready skill set for modern needs.

V. Alignment with Mission and Goals

Missouri State University has recently completed a Long Range Plan 2016-2021, which includes the following statements:

- *Missouri State University will provide students with choices from an array of academic programs, research options and opportunities to connect in meaningful ways, all of which will help them succeed and fulfill their dreams.*
- *Missouri State is committed to initiating new academic programs to meet societal needs, embracing new delivery systems to respond to student desires and addressing requirements of employers — all without compromising academic rigor and integrity.*
- *Goal: Expand graduate programs to serve distinctive regional, national and international needs.*

The proposed MS Computer Science program has the support of Missouri State University administration and faculty, it is consistent with the university's goals.

1. Need:

A. Student Demand:

- i. Estimated enrollment each year for the first five years for full-time and part-time students (Please complete table below)

Form SE	Year				
	1	2	3	4	5
Full Time	50	100	100	100	100
Part Time	5	5	5	5	5
Total	55	105	105	105	105

- ii. Will enrollment be capped in the future?

As we start this new program we would admit 50 students/year with a cap of 105 continuing students annually. This would allow us to continue to offer our quality undergraduate program (about 325 undergraduate majors). The BS Computer Science program option is ABET-accredited, and the new BS Software



Development program option (just starting in fall of 2016) has been developed to help increase the number of BS graduates.

As we assess the demands and needs of the undergraduate and graduate programs in CS, it is possible that enrollment may grow, but all graduate programs must be balanced with undergraduate enrollment.

- iii. Please provide a rationale regarding how student enrollment projections were calculated.

Student enrollment was based on our analysis of market and societal demand (see below) and our institutional resources. Other institutions in the Midwest region have seen very large enrollments over the past few years in Computer Science MS programs. Interest is high from international students, and MSU international recruiters have indicated that we could easily fill a program with at least one hundred students.

The evidence discussed in the following section documents that we will have sufficient student demand to enroll at least 50 new students per year, and our existing and new departmental resources (see Section 5) will allow us to support 100 graduate students while maintaining our quality, accredited undergraduate program.

B. Market Demand:

- i. National, state, regional, or local assessment of labor need for citizens with these skills.

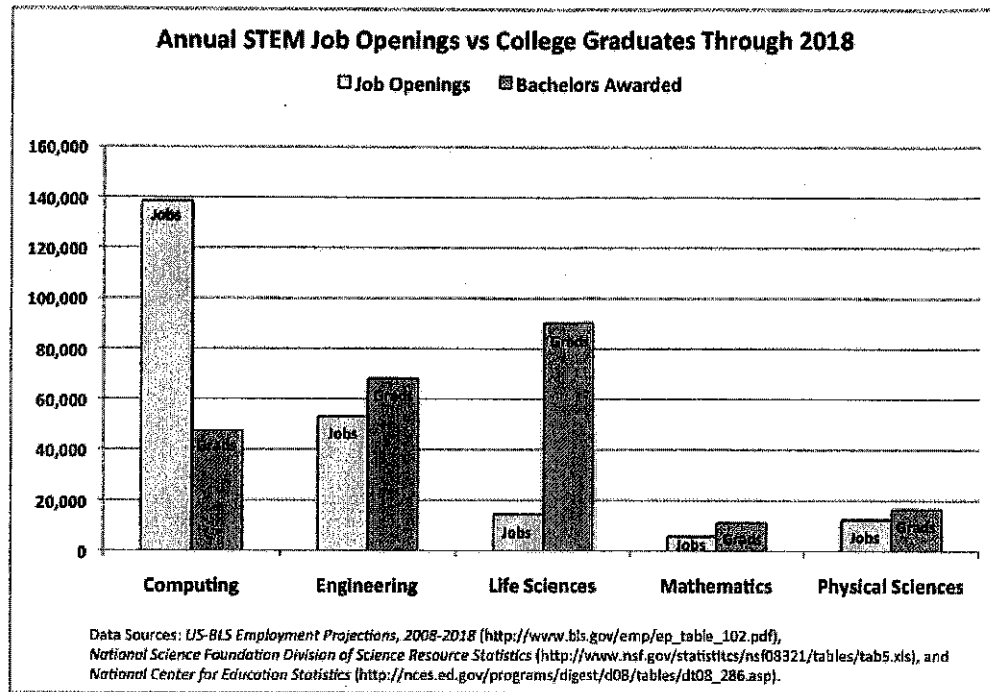
*“On a per-department basis, CS master’s degree production in U.S. Computer Science departments rose nearly 25% in 2014-15. . . Both public and private departments reported large increases. . . . For departments at public institutions, this represents the fourth straight year of increases. This suggests further increased production of master’s degrees in the next couple of years.”
Source: 2015 Taulbee Survey, p. 12-16.*

*“In 2012-13, American institutions conferred more than 751,000 [Master’s] degrees, according to the Department of Education. That was a 45-percent increase from the 2002-03 academic year. . . Math, computer science, engineering, and health sciences are doing well, . . . with international students driving a lot of the growth.”
Source: Master’s-Degree Programs Specialize to Keep Their Sheen, Chronicle of Higher Education, September 14, 2015.*

These data show that there are consistent, increasing demands for master’s degrees in Computer Science.

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Employment data from a variety of sources (US Bureau of Labor Statistics, 2015; Executive Office of the President of the United States, 2012) indicate a major increase in the demand for Computer Science professionals.



In Missouri, two of the three occupations with the highest number of 2015 job postings were related to software development, as were the six STEM occupations with the highest projected number of 2012-2022 openings.

Source: Missouri Economic Research and Information Center (MERIC), "2015 Missouri Economic Report," "STEM Occupations Top Openings, 2012-2022."

In the Ozark region, professional, scientific, and technical services accounted for the majority of new businesses established. Many new businesses focused on computer system design services and management as well as technical consulting services.

Source: 2015 Missouri Economic Report, from Missouri Economic Research and Information Center (MERIC), Missouri Department of Economic Development. https://www.missourieconomy.org/pdfs/2015_mo_economic_report.pdf

C. Societal Need:

- i. General needs which are not directly related to employment

In addition to the positive outlook for employment, positions in Computer Science pay extremely well, providing opportunities for Missouri and U.S. workers to embark on dynamic careers, enjoy a good standard of living, and contribute to the innovation that drives the country's economic growth.

- ii. Support letter(s) from potential employers (optional; append to proposal)

- ii. Support letter(s) from community leaders (optional; append to proposal)

D. Methodology used to determine "A" and "B" and "C" above.

We reviewed economic trends and forecasts as noted at each paragraph above and had direct correspondence with other universities, especially Northwest Missouri State University, University of Central Missouri, Missouri University of Science & Technology, Wichita State University, Southern Illinois University-Edwardsville, and University of Northern Iowa.

2. Duplication and Collaboration (Form CL):

If similar programs currently exist in Missouri, what makes the proposed program necessary and/or distinct from the others at public institutions, area vocational technical schools, and private career schools?

Springfield is the third-largest city in the state, and has no existing MS-level Computer Science program to support the career development and further-education needs of area CS professionals. Other institutions in Missouri with MS CS programs have seen very large enrollments over the past few years. Additional MS CS programs are feasible and necessary to meet student demand (see table below). For example, at University of Central Missouri, there are over 1300 students (90 course sections in summer, 120 course sections in Fall and Spring), with 629 MS graduates in 2014-2015. UCM's MS original program proposal of 2010 predicted an enrollment of 30 total students, and they have clearly far exceeded that projection. Although our proposed MS program is not expected to be of the same scale, the growth of the UCM program demonstrates the level of demand and student interest. Northwest Missouri State University in the related degree of MS Applied Computing, has had 100-150 students each of previous two years, with more student applications than enrollment opportunity available.

The high demand for MS Computer Science enrollment makes program duplication desirable, as opposed to problematic. Nonetheless, our proposed program is geographically separated from the other large Missouri programs. Additionally, it has a distinct curriculum that makes it a desirable and viable program (see the section on Program Structure).



MS graduates, 2014-2015	UCM	UM-C	UM-KC	UM-SL	NMSU	MS&T	SEMO	MSU
Computer and Information Sciences, General		29				38		
Computer Science	629		73	14				[Note 1]
Information Technology	235							
Computer Systems Analysis/Analyst					234			
Information Science/Studies						47		
CIP upper-level category "Business, Management, Marketing, and Related Support Services," subcategory "Management Information Systems, General"								10 [Note 2]

UCM= University of Central Missouri State University' UM-C= University of Missouri-Columbia; UM-KC=University of Missouri-Kansas City; UM-SL=University of Missouri-St. Louis; NMSU= Northwest Missouri State University; MS&T= Missouri University of Science and Technology; SEMO= Southeast Missouri State University; MSU= Missouri State University

[Note 1] The MS program of this proposal will be housed within the College of Natural and Applied Science.

[Note 2] Existing Missouri State University graduate students in a degree related to the computing field are in a separate MS program within MSU's College of Business. This program has different learning outcomes from the proposed program.

Source: NCES College Navigator, <http://nces.ed.gov/collegenavigator/>, Apr. 4, 2016 Programs/Majors, Completions (Number of Awards Conferred) 2014-2015

Does delivery of the program involve a collaborative effort with any external institution or organization? If yes, please complete the rest of this section (Form CL. If no, state not applicable and go to item 3.

Not applicable

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3. Program Structure (form PS):

A. What are the total credits required for graduation? This should match C+D+E below.

30 credit hours

B. Are there any residency requirements?

No. (There are no current plans to offer online courses, so residency and in-person attendance is implicitly required.)

Total Credits by Category

C. General Education courses: Total credits required: None (not applicable)

D. Major requirements (including required courses, electives, thesis)

E. Total credits required: 30

List of classes that contribute to this total:

Course ID	Course Title	Credits
CSC 601	Discrete Math	3
CSC 602	Data Structures	3
CSC 611	Algorithms	3
CSC 612	Databases	3
CSC 613	System Fundamentals	3
CSC 621	Compiler Construction	3
CSC 625	Computer Graphics	3
CSC 626	Methods of Optimization	3
CSC 635	Data Mining	3
CSC 640	Introduction to Artificial Intelligence	3
CSC 645	Computer Speech Music and Images	3
CSC 655	Software Quality Assurance and Project Management	3
CSC 665	Computer Networks	3
CSC 667	Mobile Computing Applications	3
CSC 687	Computing for Bioinformatics	3
CSC 690	Advanced Topics in Computer Science	3
CSC 696	Special Readings	3
CSC 701	Seminar I	1
CSC 702	Seminar II	2
CSC 735	Data Analytics	3
CSC 742	Evolutionary Computing	3
CSC 745	Adv Multimedia Programming	3
CSC 746	Human Computer Interaction	3
CSC 747	Multimedia Communications	3
CSC 765	Internet of Things	3
CSC 796	Science Internship	1-6
CSC 798	Research in Computer Science	1-4



CSC 799	Thesis	1-6
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Thesis track, total 30 credit hours. At least 15 credit hours must be at the 700-level.

3 credit hours	Required courses CSC 701(1), 702(2)
21 credit hours	Elective courses, such that at least 15 credit hours are at the 700-level, and that a maximum of 9 credit hours are in CSC 796, 798, and 799 combined. (Note: Up to 6 credit hours of coursework from other departments may be allowed in these electives if approved by the Computer Science Dept.)
6 credit hours	CSC 799 Thesis

Project track, total 30 credit hours. At least 15 credit hours must be at the 700-level.

3 credit hours	Required courses CSC 701(1), 702(2)
24 credit hours	Elective courses, such that at least 15 credit hours are at the 700-level, and that a maximum of 9 credit hours are in CSC 796, 798, and 799 combined. (Note: Up to 6 credit hours of coursework from other departments may be allowed in these electives if approved by the Computer Science Dept.)
3 credit hours	CSC 798 Project

Course-only track (non-thesis), total 30 credit hours. At least 15 credit hours must be at the 700-level.

3 credit hours	Required courses CSC 701(1), 702(2)
30 credit hours	Elective courses, such that at least 15 credit hours are at the 700-level, and that a maximum of 9 credit hours are in CSC 796, 798, and 799 combined. (Note: Up to 6 credit hours of coursework from other departments may be allowed in these electives if approved by the Computer Science Dept.)

Each Fall Semester the following courses will be offered for students: CSC625(3), CSC655(3), CSC665(3), CSC667 (3), CSC701(1), CSC735(3), CSC742(3), CSC745(3), CSC796, CSC 798 and CSC799. (First year students will primarily enroll in 600 level courses while second year students will primarily enroll in 700 level courses.)

Each Spring Semester the following courses will be offered for students: CSC615(3), CSC635(3), CSC645(3), CSC702(2), CSC746(3), CSC747(3), CSC765(3), CSC796, CSC798, CSC799. (First year students will primarily enroll in 600 level courses while second year students will primarily enroll in 700 level courses.)

- F. Free elective credits: See descriptions of tracks provided above
- G. Describe any requirements for thesis, internship or other capstone experience.

MS program consists of three options: thesis, project, and course-only. An internship is optional, not required.

A required exit exam will provide a capstone experience.

- H. Describe any unique features such as interdepartmental cooperation.

Not applicable.

4. Financial Projections (for public institutions only; Form FP): Please complete table at the end of this document. Additional narrative may be added as needed. If more than one institution is providing support, please complete a separate table for each institution.
5. Program Characteristics and Performance Goals (form PG). For collaborative programs, responsibility for program evaluation and assessment rests with the institution(s) granting the degree(s).

Although all of the following guidelines may not be applicable to the proposed program, please carefully consider the elements in each area and respond as completely as possible in the format below. Quantification of performance goals should be included wherever possible.

A. Student Preparation

Any special admissions procedures or student qualifications required for this program which exceed regular university admissions standards, e.g., ACT score, completion of core curriculum, portfolio, personal interview, etc. Please note if no special preparation will be required.

The types of admissions GPA criteria for this program are not unusual and do not which exceed typical university admissions standards, but since they are specific values they are listed here.

Admissions criteria:

There are two types of admission.

a. Accelerated admission

The Accelerated Master's Program option provides an opportunity for outstanding undergraduate students to begin their graduate course work during their senior year. To be eligible to apply for admission to this program, an MSU undergraduate student must be pursuing a BS in Computer Science or closely related field such as Math or Physics, have completed CSC 232 and MTH 215, and have a GPA of 3.5 or higher in all



courses required for the undergraduate major. An eligible student may apply for admission during the second semester of the junior year.

If accepted into the accelerated program, up to a maximum of 9 hours of 600/700 level CSC courses taken after admission into the program may be given credit for both undergraduate and graduate programs.

A student is fully admitted to the Graduate College upon completion of the requirements for the baccalaureate degree. All requirements for the master's program must be met for graduation from the master's program.

Before enrolling in a course to be counted as both undergraduate and graduate credit and to count the course toward the master's degree, an undergraduate student must be accepted into the accelerated program and receive prior approval from the graduate program advisor, department head of the undergraduate program, and the dean of the Graduate college. Acceptance into the program and all approvals must be completed prior to the end of the Change of Schedule Period for the course(s). See the Graduate College for further information.

b. Standard admission

An applicant will be considered for standard admission with a BS in Computer Science or closely related field (e.g., Computer Engineering, Math, Electrical Engineering, Software Engineering) and undergraduate-level courses equivalent to MSU CSC 232 and MTH 215 from an accredited university.

An applicant lacking undergraduate-level courses equivalent to MSU CSC 232 and MTH 215 may be admitted with the additional requirement that he or she complete those undergraduate courses' respective graduate equivalents, CSC 602 and 601 before enrolling in graduate courses that will count toward the master's degree. The need for CSC 602 and 601 will increase required credit hours past 30 and must be completed with a grade of B or better.

GPA and test score requirements for admission:

- a. Undergraduate GPA of 3.0 on a 4.0 scale, or 3.0/4.0 in the most recent 60 credit hours*
- b. GRE: a combined score of 305 on the verbal and quantitative sections of the Graduate Record Examination.*
- c. English language communication: International applicants whose native language is not English and do not have a U.S. degree are required to take the TOEFL or IELTS. Required score on the TOEFL: A minimum score of 550 on the paper version, 213 on the computer-based, or 79 on the internet-based TOEFL. Required score on the IELTS: A minimum score of 6.0. The English language communication requirement is waived for applicants who meet one of the following: (i) are native English speakers or (ii) have completed a minimum of 60 semester credit hours from an accredited college or university in the U.S.*

Characteristics of a specific population to be served, if applicable.

Not applicable

B. Faculty Characteristics

Any special requirements (degree status, training, etc.) for assignment of teaching for this degree/certificate.

The Department of Computer Science accepts the criteria, as determined by the Graduate Council, for appointment to the Graduate Faculty:

1. *Terminal degree in Computer Science or a related field (PhD or equivalent)*
2. *Minimum of three scholarly publications (or equivalent) in hand*
3. *Approval by majority vote of the Department of Computer Science Graduate Faculty*

The department further recognizes that, in the rapidly changing field of computer science, conferences have become an accepted primary means of disseminating knowledge. Therefore, the department makes no distinction between peer-reviewed papers published in conference proceedings and journal publications.

Estimated percentage of credit hours that will be assigned to full time faculty. Please use the term "full time faculty" (and not FTE) in your descriptions here.

We estimate that all of MS CS graduate program credit hours will be assigned to full time faculty; however, adjunct faculty with appropriate credentials may occasionally offer courses.

Expectations for professional activities, special student contact, teaching/learning innovation.

Each faculty member is expected to allocate time and effort to a wide range of teaching, research/scholarship, and service obligations that promote the mission and goals of the University, college, and department. These expectations are fully described in the Computer Science Dept. Promotion and Tenure Plan.

Teaching effectiveness by faculty is vital to the development and enhancement of the intellectual quality and academic integrity of the University. Teaching activities include high quality instruction at the Undergraduate and Graduate level, Instructional Development, attendance at conferences and workshops or other professional development activities, innovations in the effective use and development of instructional technology and resources to promote active student learning, academic advising services, guidance and supervision of student projects, theses, internships, or co-operative work experiences, involvement in student

organizations and activities promoting faculty-student interaction, involvement in activities to promote departmental programs and services to prospective students, and other pedagogical activities that contribute to effective teaching.

Research activities in the MSU Computer Science Department are expected to contribute to the theory or practice in the broadly-defined field of computer science through four recognized forms of scholarship: discovery, integration, application and teaching. We believe that students benefit from knowledge of areas of current topics of research. Whenever possible, faculty members should offer students an opportunity to participate in their research activities.

The department defines service as performance of departmental, college, university, and professional activities which fall into three domains: involvement in the University's shared governance, professional expertise shared with the internal and external community, and contributions to a faculty member's profession.

C. Enrollment Projections (repeat section 1.A.i)

Estimated enrollment each year for the first five years for full-time and part-time students (Please complete table below)

	Year 1	Year 2	Year 3	Year 4	Year 5
Full Time	50	100	100	100	100
Part Time	5	5	5	5	5
Total	55	105	105	105	105

Student FTE majoring in program by the end of five years: estimated 105

Percent of full time and part time enrollment by the end of five years: estimated 95% full time, 5% part time

D. Student and Program Outcomes

Number of graduates per annum at three and five years after implementation:
Estimated 50

Special skills specific to the program.

The Student Outcomes of the MS CS degree program are that graduates are expected to be able to:

- *Design algorithms to solve specific problems*
- *Present technical information to an audience*
- *Apply techniques from CS research to develop software solutions*
- *Conduct research in computer science*

Proportion of students who will achieve licensing, certification, or registration:

Licensing, certification, or registration are not common for software development professionals. The estimated number of students is zero.

Performance on national and/or local assessments, e.g., percent of students scoring above the 50th percentile on normed tests; percent of students achieving minimal cut-scores on criterion-referenced tests. Include expected results on assessments of general education and on exit assessments in a particular discipline as well as the name of any nationally recognized assessments used.

Not applicable.

Placement rates in related fields, in other fields, unemployed.

Demand for computer software professionals is high, as job demand in CS far exceeds the number of graduates. The estimated placement rate in CS-related fields is 95%, in other fields 5%, unemployed 0% (See Demand Section above).

Transfer rates, continuous study.

Transfer rates are expected to be low because of the relatively short time to completion of the MS degree program.

E. Program Accreditation

MSU Computer Science undergraduate program has been accredited by the Computing Commission of ABET, www.abet.org, since 1989 (including accretor mergers).

ABET does not offer an accreditation process for MS degrees, and we do not expect to seek other accreditation for the MS CS degree. Nonetheless, we expect to use the same practices in development, delivery, and assessment of the graduate degree program.

F. Alumni and Employer Survey

- Expected satisfaction rates for alumni, including timing and method of surveys
- Expected satisfaction rates for employers, including timing and method of surveys

Similarly to the methods used in our ABET-accredited undergraduate program, we will set an initial goal for satisfaction rate outcomes, collect assessment data at regular intervals, analyze the data, and take appropriate action in order to seek continuous improvement.

Initially, we will set goals of 80% satisfaction rates for alumni of this MS program and 80% satisfaction rates for employers of graduates. Our existing process for continuous improvement is a two-year assessment cycle, allowing sufficient time between surveys for changes to take effect. We will conduct biannual online surveys of graduates and employers to obtain outcome satisfaction data.

6. No Program Specific Accreditation: If accreditation is not a goal for this program, provide a brief rationale for your decision. If the institution is seeking program accreditation, provide any additional information that supports your program.

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MSU Computer Science undergraduate program has been accredited by the Computing Commission of ABET, www.abet.org, since 1989 (including accreditor mergers).

ABET does not offer an accreditation process for MS degrees, and we do not expect to seek accreditation for the MS CS degree. Nonetheless, we expect to use the same practices in development, delivery, and assessment of the graduate degree program.

7. Will this program be offered primarily at an off-campus location? If yes, complete this section. If no, skip to item 9.

NO

8. Institutional Characteristics: Please describe succinctly why your institution is particularly well equipped or well suited to support the proposed program.

Missouri State University is a comprehensive institution offering undergraduate and graduate programs, and has a statewide legislative mandate in public affairs.

Missouri State University has recently completed a Long Range Plan 2016-2021, which includes the following statements:

- Missouri State University will provide students with choices from an array of academic programs, research options and opportunities to connect in meaningful ways, all of which will help them succeed and fulfill their dreams.*
- Missouri State is committed to initiating new academic programs to meet societal needs, embracing new delivery systems to respond to student desires and addressing requirements of employers — all without compromising academic rigor and integrity.*
- Goal: Expand graduate programs to serve distinctive regional, national and international needs.*

MSU Computer Science undergraduate program has been accredited by the Computing Commission of ABET, www.abet.org, since 1989 (including accreditor mergers). Although ABET does not offer an accreditation process for MS degrees, we expect to use the same practices in development, delivery, and assessment of the graduate degree program.

The proposed MS Computer Science program has the support of Missouri State University administration and faculty, and supports the university goals.

The region of southwest Missouri has a developing number of companies and businesses with a primary focus or reliance upon software development. Springfield is the third-largest city in the state, and there is no existing MS-level CS program to support the career development and further-education needs of area CS professionals.

9. Any Other Relevant Information

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Financial information (Section 5)

	Year 1	Year 2	Year 3	Year 4	Year 5
1. Expenditures					
A. One-time:					
New/renovated space	400,000				
Equipment	100,000				
Library					
Consultants					
Other					
Total for One-time Expenditures	500,000				
B. Recurring:					
Faculty	125,000	225,000	305,000	305,000	305,000
Staff (6 TA's)	72,000	72,000	72,000	72,000	72,000
Benefits	44,000	78,000	106,000	106,000	106,000
Equipment		5,000	5,000	5,000	5,000
Library	22,150	22,150	22,150	22,150	22,150
Other		15,000	20,000	20,000	20,000
Total for Recurring Expenditures	291,000	445,000	558,000	558,000	558,000
TOTAL (A + B)	791,000				
2. Revenues					
*State Aid - CBHE	0	0	0	0	0
*State Aid - DESE	0	0	0	0	0
Tuition/Fees	400,00	800,000	800,000	800,000	800,000
Institutional/Resources	500,000				
Other					
TOTAL REVENUES	109,000	355,000	242,000	242,000	242,000

Assumptions: This program will be funded by the tuition dollars paid by students. In year one this chart assumes a minimum of 50 students enrolled and by year two a minimum of 100 students will be enrolled. This chart does not include increases in salary or tuition over the five year time period but one might assume at least CPI increases for both in each year during the time period.

Library Resources – A full subscription is required for this new graduate program that does not currently exist on campus. The cost estimate is currently approximately \$50,000.

Year 1 – 2017-2018 – A new department head will be hired for the department adding one additional faculty line.

Year 2 – 2018-2019 – A new faculty member will be hired for the department adding one additional faculty line

Year 3 (or when the program truly reaches 100 students) - A new faculty member will be hired for the department.

*Please provide a brief description of the nature of the state aid. Is "new" money requested or is "old" money going to be used? What is the nature of the "old" money?

4a Business and Marketing Plan: Recruiting and Retaining Students

The recruitment of master's students to the MSU MS CS program should recognize three characteristic categories of potential students:

- Recent BS CS graduates continuing to full-time graduate study directly from completion of BS
- Local members of software development workforce pursuing further education part-time
- International students

Marketing the MSU MS CS program to potential students in all categories should emphasize the curriculum emphasis of the MSU MS CS program: software development for modern, multi-connected applications.

Marketing to potential students in any category, but especially helpful to international students, will use web-based informational and publicity strategy to describe the advantage and benefit to study at MSU. For example, development of many short video clips describing the experiences and outcomes that students can expect in classes, student research in thesis and project, and internships.

We will consider a regular "online open house" of webcam-based visibility and familiarity with MSU CS facilities.

MSU has previously developed a network of partnerships and personal contacts at several universities in targeted international countries whose students we would like to recruit. Where possible, encourage MS CS graduates native to international countries to visit universities in targeted international countries to promote MSU's program.

Marketing and recruiting students to the MS CS program will be the responsibility of the CS department head and the MSU recruiting office.

Plans to retain students through graduation will include facilitating community among students to enable peer-based study and learning.

Plans to ensure program enrollment outcomes will include regular collection of course assessment data, analysis by faculty similarly to the existing ABET process in use by the undergraduate program, and review of exit exam outcomes.

4b. Institutional Capacity

- Project the burden of the program on existing resources. Provide evidence that there are sufficient students and funds available to implement and sustain a high quality program without compromising the quality of existing programs.

Missouri State.

②

Curricular Action Workflow

Missouri State > Computer Services - MIS > Curricular Action Workflow > CAW - New Course Proposal Form

New Course Proposal FormSubmitted on 08/15/2016 by Jamil Saquer (Jamilsaquer@missouristate.edu).***All fields require input**

- New COURSE
- New REGULAR PERMANENT SECTION of an existing variable content course. If a new regular section of an existing variable topics course, enter the existing course number below

Course Code:

CSC

Course Number: (Check Availability)

601

Course Title:

Advanced Discrete Structures

Will this proposal need to be reviewed by CGEIP? No YesWill this proposal need to be reviewed by EPPC? No Yes

Prerequisite/Co-requisite or enter 'None':

None

General Course Description: (Include any Pass/Not Pass grading restrictions, repeatable limits, limitation on course applicability, UG/GR parallel course, etc.)

Topics include: logic, mathematical reasoning, basic counting, discrete probability, matrices, recursion, sets and relations, graphs and trees.

Credit Hours:

3

Lecture Contact Hours:

3

Lab Contact Hours:

0

Note: If variable credit, enter the highest number and add to end of course description. (e.g. "Variable credit, may be taken 1-3 hours.")

Periodicity. Check all that apply.

- Fall Fall (even-numbered years only) Fall (odd-numbered years only)
- Spring Spring (even-numbered years only) Spring (odd-numbered years only)

2

Summer On Demand only

Complete Catalog Description:

CSC 601 Advanced Discrete Structures

Prerequisite: None

Topics include: logic, mathematical reasoning, basic counting, discrete probability, matrices, recursion, sets and relations, graphs and trees.

Credit hours: 3 Lecture contact hours: 3 Lab contact hours: 0

Typically offered: On Demand only

Include sample syllabus (list topics, course goals.) Use text box OR upload only file types of PDF, DOC or DOCX.

See attached file

Attached

Purpose of Course

To support the new proposed MS in CS program. Students who lack the material covered in MTH 215 will be required to take CSC 601.

Relationship to Other Departments

Mathematics. CSC 601 will be cross listed with MTH 215.

Is there a graduate/undergraduate parallel course to this one? No Yes

Enter parallel course number

MTH215 Discrete Mathematics

How do these classes differ?

Students in CSC 601 will write a term paper.

New Course Resource Information

Anticipated Average Enrollment per section:

3

Maximum Enrollment Limit per section:

35

Anticipated Average Enrollment per semester:

3

Maximum Enrollment Limit per semester:

35

Anticipated Average Enrollment per year:

6

Maximum Enrollment Limit per year:

70

Faculty Load Assignment (equated hours):

3

Is another course being deleted? No Yes

What will this course require in the way of:

Additional library Holdings

None

Additional computer resources

2

None

Additional or remodeled facilities

None

Additional equipment or supplies

None

Additional travel funds

None

Additional faculty; general vs specialized

None beyond what is specified in the MS proposal

Additional faculty; regular vs per-course

None beyond what is specified in the MS proposal

Other additional expenses

None

If additional faculty are not required, how will faculty be made available to teach this course?

This course will be taught parallel to MTH 215. Moreover, MS Computer Science is a new program (see new program proposal). Additional, sufficient faculty are included with new program.

List names of current faculty qualified and available to teach this course

Dr. Paula Kemp

Dr. Steven Singer

Dr. Leslie Reid

Dr. Jamil Saquer

Dr. Yang Wang

Dr. Ken Vollmar

What is the anticipated source of students for this course?

Students enrolled in the CS MS program

If from within the department, will students be taking this course in addition to or in place of other courses?

In addition

If from outside the department, which courses in other departments would most likely be affected?

N/A

Other comments:

None

What is the date that this new course was approved by departmental or program faculty? (MM/DD/YYYY)

06/15/2016

Current Status:

Dean Review

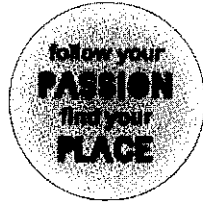
Proposal Progress:

08/15/2016 - Submitted by Department Head (Kenneth Vollmar)

2

Review Comments:

No comments have been added to this proposal.



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MTH 215

Dr. Paula Kemp

Office Number: Cheek Hall, 47M
Office Hours: 3:15-5:00 Tuesday
8:30- 11:00 Wednesday
3:15-4:00 Thursday

Course description as given in SMSU Undergraduate Catalog
Prerequisites: MTH 138. Topics include: logic, mathematical reasoning, basic counting, discrete probability, matrices, recursion, sets and relations, graphs and trees.

Textbook: Discrete Mathematics and Its Applications, Fifth Edition, by K. Rosen

Distribution of Course Points

Quizzes 100 points
(Quizzes may include: announced quizzes, pop quizzes, take-home quizzes, other assignments.)

Quizzes will be given on T and R. Unless otherwise indicated, the quizzes will be based on material from previous class.

Test 1 100 points
Test 2 100 points
Test 3 100 points
Comprehensive final exam 150 points

Grades: Final grades will be based on total points earned using a 90-80-70-60 scale. No make up quiz will be given. No make-up test will be given. The percentage on the final will count for any missed test with an excused absence.

Homework: Mathematics is a subject which is learned and understood through use and practice rather than by watching and listening. To master successfully the material of the course the student should plan to spend a minimum of 6-9 hours per week, outside of class, studying for this course. This should include at least 4 hours studying the text with pencil and paper at hand plus working assigned problems. Advance notice will be given when homework will be collected and graded. It is essential for the student to keep up in this class and to work all assignments whether or not they will be graded.

Mid Term Grades

Mid Term grades are based mostly on the test scores

Borderline Cases and Exceptional cases

Borderline cases and Exceptional cases may be considered for a possible higher grade and/or adjustment based on criteria which include:

- Perfect or near perfect attendance
- Solid effort put into homework
- Good overall performance

Very good performance on the comprehensive final exam
Participation in Extra credit projects

Extra Credit Points

There may be extra credit opportunities available. Be sure to take advantage.

Help Sessions

Help Sessions will be offered.

Homework

A list of exercises from each relevant section will be given.

Do these exercises carefully.

From time to time, additional exercises (which may or may not be from the textbook) will be given.

While doing these exercises at home, use good notation, draw neat graphs, etc.

Pay particular attention to story problems or word problems: Draw good pictures, set up equations properly, do side calculations neatly, and give your final answer in a proper form.

Do not be afraid of abstract exercises: you will find them to be usually easy.

Avoid asking teacher for Homework assignments or handouts because of missed class

Instructions during Tests (Tests include Final Exam)

- Show as much work as possible for each question asked on the test.
- No cheating.
- Do not glance, peek, or look into your neighbor's test even for a moment.
- Cover up your test appropriately.
- Alternate Seating.
- No caps.
- Bring your own ruler, compass, protractor.
- No index cards, no scrap papers on tests.
- There will be some No Partial Credit questions on each test.
- You must show work appropriately on all questions.
- Do not give two answers to the same question.
- Do not give two answers separated by a word such as "OR"
- Write your name on every page of the test.

Calculators

- No calculators on any Tests, Final (unless otherwise stated)
- No calculators on any Quiz (unless otherwise stated)
- You may use a calculator on Homework problems requiring extensive computations.
- You are encouraged to use your calculator to explore, to experiment, to make discoveries, etc on your own.

Nondiscrimination

Missouri State University is an equal opportunity/affirmative action institution, and maintains a grievance procedure available to any person who believes he or she has been discriminated against. At all times, it is your right to address inquiries or concerns about possible discrimination to the Office of Equal Opportunity Officer, Sicheluff Hall 296, (417) 836-4252.

Disability Accommodations

To request academic accommodations for a disability, contact the Director of Disability Services, Plaster Student Union, Suite 405, (417) 836-4192 or (417) 836-6792 (TTY), <http://www.smsu.edu/disability>. Students are required to provide documentation of disability to Disability Services prior to receiving accommodations. Disability Services refers some types of accommodation requests to the Learning Diagnostic Clinic, which also provides diagnostic testing for learning and psychological disabilities. For information about testing, contact the Director of the Learning Diagnostic Clinic, (417) 836-4787, <http://www.smsu.edu/contrib/ldc>

Academic Dishonesty

Missouri State University is a community of scholars committed to developing educated persons who accept the responsibility to practice personal and academic integrity. You are responsible for knowing and following the university's student honor code, Student Academic Integrity Policies and Procedures, available at <http://www.smsu.edu/acadaff/AcademicIntegrity.html> and also available at the Reserves Desk in Meyer Library. Any student participating in any form of academic dishonesty will be subject to sanctions as described in this policy.

Dropping a class

It is your responsibility to understand the University's procedure for dropping a class. If you stop attending this class but do not follow proper procedure for dropping the class, you will receive a failing grade and will also be financially obligated to pay for the class. To drop a class anytime after the first week of classes, you must complete and turn in a drop slip at an authorized registration center (see <http://www.smsu.edu/recreg/chnsched.html>). You do not need to obtain any signatures on the drop slip. It does not need to be signed by your instructor, your advisor, or a department head. If you wish to withdraw from the University (i.e., drop all your classes), contact the Registration Center, Carrington 320, 836-5522.

Cell Phone Policy

The use by students of cell phones, pagers, or similar communication devices during scheduled classes is prohibited. All such devices must be turned off or put in a silent mode and cannot be taken out

during class. Exception to this policy is possible in special circumstances.
See <http://www.smsu.edu/acadaff/Policies/default.htm> for complete policy.

Important Dates and Information

See SMSU 2005-2006 Undergraduate Catalog and Fall Class Schedule 2005 for important dates and information.

Tuesday	March 28, 2006	Last Day to Drop with Automatic N Grade
Friday	May 5, 2006	Last Day to Drop or Withdraw

Attendance Policy Page

My attendance policy is one that you will most likely encounter in your work. Each student is expected to attend all classes and be on time unless there is an excused absence.

Attendance and arriving on time in this section are very important.

Note that if you miss even one class, it may significantly affect your understanding of the material. Read the attendance policy in the SMSU Undergraduate Catalog.

Read Pages 62-63 of the 2005-2006 Undergraduate Catalog (p. 63) and at <http://www.smsu.edu/recreg/attendan.html>.

Final

Thursday, May 18, Final exam from 11:00 to 1:00 pm.

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Curricular Action Workflow



Missouri State > Computer Services - MIS > Curricular Action Workflow > CAW - New Course Proposal Form

New Course Proposal Form

Submitted on 08/15/2016 by Jamil Saquer (Jamilsaquer@missouristate.edu).

*All fields require input

- New COURSE
- New REGULAR PERMANENT SECTION of an existing variable content course. If a new regular section of an existing variable topics course, enter the existing course number below

Course Code: Course Number: (Check Availability)

Course Title:

Will this proposal need to be reviewed by CGEIP? No Yes

Will this proposal need to be reviewed by EPPC? No Yes

Prerequisite/Co-requisite or enter 'None':

General Course Description: (Include any Pass/Not Pass grading restrictions, repeatable limits, limitation on course applicability, UG/GR parallel course, etc.)

Introduction to data structures. Topics will include: algorithm design; complexity analysis; abstract data types and encapsulation; basic data structures and their application, including stacks, queues, linked lists and binary trees; dynamic memory allocation; recursion; sorting and searching; debugging techniques. A student cannot receive credits for both CSC 602 and CSC 232.

Credit Hours: Lecture Contact Hours: Lab Contact Hours:

Note: If variable credit, enter the highest number and add to end of course description. (e.g. "Variable credit, may be taken 1-3 hours.")

Periodicity. Check all that apply.

- Fall
- Fall (even-numbered years only)
- Fall (odd-numbered years only)

3

- Spring
- Spring (even-numbered years only)
- Spring (odd-numbered years only)
- Summer
- On Demand only

Complete Catalog Description:

CSC 602 Introduction to Data Structures

Prerequisite: None

Introduction to data structures. Topics will include: algorithm design; complexity analysis; abstract data types and encapsulation; basic data structures and their application, including stacks, queues, linked lists and binary trees; dynamic memory allocation; recursion; sorting and searching; debugging techniques. A student cannot receive credits for both CSC 602 and CSC 232.

Credit hours: 3 Lecture contact hours: 0 Lab contact hours: 0

Typically offered: On Demand only

Include sample syllabus (list topics, course goals.) Use text box OR upload only file types of PDF, DOC or DOCX.

See attached file

Attached

Purpose of Course

To support the new proposed MS in Computer Science

Relationship to Other Departments

None

Is there a graduate/undergraduate parallel course to this one? No Yes

Enter parallel course number:

CSC232 Data Structures

How do these classes differ?

Students in 602 will work on a project or write a paper.

New Course Resource Information

Anticipated Average Enrollment per section:	3	Maximum Enrollment Limit per section:	35
Anticipated Average Enrollment per semester:	3	Maximum Enrollment Limit per semester:	35
Anticipated Average Enrollment per year:	6	Maximum Enrollment Limit per year:	70
Faculty Load Assignment (equated hours):	3		

Is another course being deleted? No Yes

What will this course require in the way of:

Additional library Holdings

None

3

Additional computer resources

None

Additional or remodeled facilities

None

Additional equipment or supplies

None

Additional travel funds

None

Additional faculty; general vs specialized

None beyond what is specified in the MS proposal

Additional faculty; regular vs per-course

None beyond what is specified in the MS proposal

Other additional expenses

None

If additional faculty are not required, how will faculty be made available to teach this course?

This course will be taught in parallel with an existing course, CSC 232

List names of current faculty qualified and available to teach this course

Dr. Jamil Saquer
Dr. Ken Vollmar
Dr. Anita Liu
Dr. Razib Iqbal
Dr. Tony Clark

What is the anticipated source of students for this course?

Students enrolled in the Computer Science MS program

If from within the department, will students be taking this course in addition to or in place of other courses?

In addition

If from outside the department, which courses in other departments would most likely be affected?

N/A

Other comments:

None

What is the date that this new course was approved by departmental or program faculty? (MM/DD/YYYY)

06/15/2016

3

Current Status:

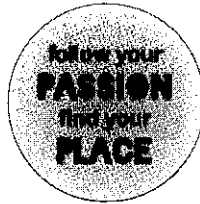
Dean Review

Proposal Progress:

08/15/2016 - Submitted by Department Head (Kenneth Vollmar)

Review Comments:

No comments have been added to this proposal.



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CSC 602 – Introduction to Data Structures

INSTRUCTOR: Dr. Jamil Saquer

OFFICE: 211B Cheek Hall

E-Mail: JamilSaquer@missouristate.edu

PHONE: 836-8745

OFFICE HOURS: M, W, F 10:00 am - 10:00 am & R 9:00 am – 10:00 am

PREREQUISITE: None, assuming the ability to program in a high level programming language.

REQUIRED TEXTBOOK:

Data Abstraction & Problem Solving with C++: Walls and Mirrors, 7th Edition, by Frank M. Carrano and Timothy M. Henry

COURSE DESCRIPTION: Introduction to data structures. Topics will include: algorithm design; complexity analysis; abstract data types and encapsulation; basic data structures and their application, including stacks, queues, linked lists and binary trees; dynamic memory allocation; recursion; sorting and searching; debugging techniques. A student cannot receive credits for both CSC 232 and CSC 602.

ABSENCE POLICY: Students are expected to attend class. If you will miss class or need to leave class early, please let me know ahead of time. Students are responsible for everything explained, announced, or distributed during the lectures.

EXAMINATIONS: There will be three exams for this course. The dates for the exams are given in the approximate schedule below. Make up exams will be given only in case of valid and justified reasons such as illness or emergency in the family.

GRADING PROCEDURE: A student's grade in this course is determined from her/his performance on the scheduled examinations and approximately 6 programming assignments. In order to receive a passing grade for the course, a student must receive a passing average on the examinations as well as a passing average on the programming assignments. Assignments must be turned in by the due date; late work will not be accepted.

MARKS DISTRIBUTION:

- Three Exams: 60% (20%, each),
- Homework Programming Assignments: 40%

This class will not use +/- grading: your grade will be A, B, C, D, or F.

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Curricular Action Workflow

Missouri State > Computer Services - MIS > Curricular Action Workflow > CAW - New Course Proposal Form

New Course Proposal FormSubmitted on 08/15/2016 by Kenneth Vollmar (Kenvollmar@missouristate.edu).***All fields require input**

- New COURSE
- New REGULAR PERMANENT SECTION of an existing variable content course. If a new regular section of an existing variable topics course, enter the existing course number below

Course Code:

CSC

Course Number: (Check Availability)

611

Course Title:

Algorithms and Advanced Data Structures

Will this proposal need to be reviewed by CGEIP? No YesWill this proposal need to be reviewed by EPPC? No Yes

Prerequisite/Co-requisite or enter 'None':

None

General Course Description: (Include any Pass/Not Pass grading restrictions, repeatable limits, limitation on course applicability, UG/GR parallel course, etc.)

Algorithms and advanced data structures, including graphs, heaps, self-adjusting data structures, set representations and dynamic programming. Sample applications, including memory management and data compression. Introduction to NP-complete problems. Correctness proofs and efficiency analysis are stressed. Cannot receive credit for both CSC 325 and CSC 611.

Credit Hours:

3

Lecture Contact Hours:

3

Lab Contact Hours:

0

Note: If variable credit, enter the highest number and add to end of course description. (e.g. "Variable credit, may be taken 1-3 hours.")

Periodicity. Check all that apply.

- Fall Fall (even-numbered years only) Fall (odd-numbered years only)

4

- Spring
- Spring (even-numbered years only)
- Spring (odd-numbered years only)
- Summer
- On Demand only

Complete Catalog Description:

CSC 611 Algorithms and Advanced Data Structures

Prerequisite: None

Algorithms and advanced data structures, including graphs, heaps, self-adjusting data structures, set representations and dynamic programming. Sample applications, including memory management and data compression. Introduction to NP-complete problems. Correctness proofs and efficiency analysis are stressed. Cannot receive credit for both CSC 325 and CSC 611.

Credit hours: 3 Lecture contact hours: 3 Lab contact hours: 0

Typically offered: On Demand only

Include sample syllabus (list topics, course goals.) Use text box OR upload only file types of PDF, DOC or DOCX.

See attached file Attached

Purpose of Course

To support the new proposed MS in Computer Science

Relationship to Other Departments

None

Is there a graduate/undergraduate parallel course to this one? No Yes

Enter parallel course number

CSC325 Algorithms and Advanced Data Structures

How do these classes differ?

This course differs from CSC 325 in that CSC 611 students will complete additional paper(s), project(s), and assignment(s).

New Course Resource Information

Anticipated Average Enrollment per section:	3	Maximum Enrollment Limit per section:	35
Anticipated Average Enrollment per semester:	3	Maximum Enrollment Limit per semester:	35
Anticipated Average Enrollment per year:	6	Maximum Enrollment Limit per year:	70
Faculty Load Assignment (equated hours):	3		

Is another course being deleted? No Yes

What will this course require in the way of:

Additional library Holdings

4

None

Additional computer resources

None

Additional or remodeled facilities

None

Additional equipment or supplies

None

Additional travel funds

None

Additional faculty; general vs specialized

None beyond what is specified in the MS proposal

Additional faculty; regular vs per-course

None beyond what is specified in the MS proposal

Other additional expenses

None

If additional faculty are not required, how will faculty be made available to teach this course?

This course will be taught in parallel with an existing course, CSC 325

List names of current faculty qualified and available to teach this course

Dr. Tony Clark
Dr. Razib Iqbal
Dr. Ken Vollmar

What is the anticipated source of students for this course?

Students enrolled in the Computer Science MS program

If from within the department, will students be taking this course in addition to or in place of other courses?

In addition

If from outside the department, which courses in other departments would most likely be affected?

N/A

Other comments:

None

4

What is the date that this new course was approved by departmental or program faculty? (MM/DD/YYYY)

06/15/2016

Current Status:

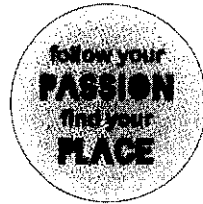
Dean Review

Proposal Progress:

08/15/2016 - Submitted by Department Head (Kenneth Vollmar)

Review Comments:

No comments have been added to this proposal.



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4

**CSC 611 Algorithms and Advanced Data Structures
COURSE POLICY STATEMENT**

Instructor: Dr. Ken Vollmar
Office: 203B Cheek Hall
Phone: 836-4157
email: KenVollmar@missouristate.edu

Catalog Course Description:

Algorithms and advanced data structures, including graphs, heaps, self-adjusting data structures, set representations and dynamic programming. Sample applications, including memory management and data compression. Introduction to NP-complete problems. Correctness proofs and efficiency analysis are stressed. Cannot receive credit for both CSC 325 and CSC 611.

Attendance: Attendance is not recorded. Attendance is expected at exams (announced one week in advance). In any event you are responsible for any information presented and announcements made in class. Late arrival and early departure is discouraged as rude to your fellow computer scientists.

Required Textbook: *Introduction to Algorithms, 3rd Edition, by Cormen, Leiserson, Rivest, Stein.*

<https://mitpress.mit.edu/books/introduction-algorithms>
www.cplusplus.com/reference/ or www.cppreference.com

Grade Weighting:

Assignments (ten, individual)	45%	<i>(Drop one of the assignments)</i>
Projects (three, group)	25%	
Midterm exam	15%	
Final exam	15%	

This course differs from CSC 325 in that CSC 611 students will complete additional paper(s), project(s), and assignment(s).

4

Tentative Topics

1. Review of C++ and data structures	Chap. 10, p. 232
a. Implementation of several algorithms	
b. Use of fundamental and C++ STL data structures.	
c. Design and creation of C++ classes for advanced data structures	
2. Algorithm analysis	
a. Asymptotic notations: ω , Ω , θ , O , o	Chap. 3, p. 43
b. Growth of functions	Chap. 3, p. 43
c. Solving recurrences	Chap. 4, p. 65
d. Amortized analysis	Chap. 17, p. 451
3. Algorithm design approaches	
a. Incremental approach	
b. Divide-and-conquer	Chap. 4, p. 65
c. Randomized algorithms	Chap. 5, p. 114
d. Dynamic programming	Chap. 15, p. 359
e. Greedy algorithms	Chap. 16, p. 414
f. Approximation algorithms	Chap. 35, p. 1106
Others: Brute-force algorithms	
4. Advanced data structures	
a. Hash tables	Chap. 11, p. 253
b. Heaps	??
c. Red-black trees	??
d. disjoint-sets	Chap. 21, p. 561
e. graphs	Chap. 22-24, p. 589
Others: Priority queue Chap. 6.5, p. 162 balanced binary tree Chap. 13, p. 308 Got two versions of Major topic chart	
5. NP-Completeness	Chap. 34, p. 1048

Missouri State.

Curricular Action Workflow



5

Missouri State > Computer Services - MIS > Curricular Action Workflow > CAW - New Course Proposal Form

New Course Proposal Form

Submitted on 08/15/2016 by Jamil Saquer (Jamilsaquer@missouristate.edu).

*All fields require input

- New COURSE
- New REGULAR PERMANENT SECTION of an existing variable content course. If a new regular section of an existing variable topics course, enter the existing course number below

Course Code:

CSC

Course Number: (Check Availability)

612

Course Title:

Advanced Database System Concepts

Will this proposal need to be reviewed by CGEIP? No Yes

Will this proposal need to be reviewed by EPPC? No Yes

Prerequisite/Co-requisite or enter 'None':

None

General Course Description: (Include any Pass/Not Pass grading restrictions, repeatable limits, limitation on course applicability, UG/GR parallel course, etc.)

A study of modern database systems and their underlying concepts. Core topics include the relational model, SQL, database design theory, query processing, file structures, transactions, and concurrency. Programming projects provide practical experience in developing GUI database applications. Students cannot receive credit for both CSC 612 and CSC 335.

Credit Hours:

3

Lecture Contact Hours:

3

Lab Contact Hours:

0

Note: If variable credit, enter the highest number and add to end of course description. (e.g. "Variable credit, may be taken 1-3 hours.")

Periodicity. Check all that apply.

- Fall
- Fall (even-numbered years only)
- Fall (odd-numbered years only)

5

- Spring
- Spring (even-numbered years only)
- Spring (odd-numbered years only)
- Summer
- On Demand only

Complete Catalog Description:

CSC 612 Advanced Database System Concepts

Prerequisite: None

A study of modern database systems and their underlying concepts. Core topics include the relational model, SQL, database design theory, query processing, file structures, transactions, and concurrency. Programming projects provide practical experience in developing GUI database applications. Students cannot receive credit for both CSC 612 and CSC 335.

Credit hours: 3 Lecture contact hours: 3 Lab contact hours: 0

Typically offered: On Demand only

Include sample syllabus (list topics, course goals.) Use text box OR upload only file types of PDF, DOC or DOCX.

See attached file Attached

Purpose of Course

To support the new proposed MS program in Computer Science

Relationship to Other Departments

None

Is there a graduate/undergraduate parallel course to this one? No Yes

Enter parallel course number

CSC335 Database System Concepts

How do these classes differ?

Students in CSC 612 are required to write a term paper and/or work on a project

New Course Resource Information

Anticipated Average Enrollment per section:	5	Maximum Enrollment Limit per section:	35
Anticipated Average Enrollment per semester:	5	Maximum Enrollment Limit per semester:	35
Anticipated Average Enrollment per year:	10	Maximum Enrollment Limit per year:	70
Faculty Load Assignment (equated hours):	3		

Is another course being deleted? No Yes

What will this course require in the way of:

Additional Library Holdings

None

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Additional computer resources

None

Additional or remodeled facilities

None

Additional equipment or supplies

None

Additional travel funds

None

Additional faculty; general vs specialized

None beyond what is specified in the MS Proposal

Additional faculty; regular vs per-course

None beyond what is specified in the MS Proposal

Other additional expenses

None

If additional faculty are not required, how will faculty be made available to teach this course?

This course will be taught parallel to CSC 335. Moreover, MS Computer Science is a new program (see new program proposal). Additional, sufficient faculty are included with the new program.

List names of current faculty qualified and available to teach this course

Dr. Jamil Saquer
Dr. Lloyd Smith

What is the anticipated source of students for this course?

Students enrolled in the CS MS program

If from within the department, will students be taking this course in addition to or in place of other courses?

In addition

If from outside the department, which courses in other departments would most likely be affected?

N/A

Other comments:

None

What is the date that this new course was approved by departmental or program faculty? (MM/DD/YYYY)

06/15/2016

Current Status:

Dean Review

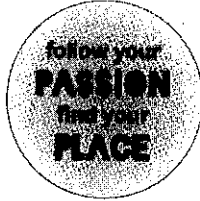
Proposal Progress:

08/15/2016 - Submitted by Department Head (Kenneth Vollmar)

Review Comments:

No comments have been added to this proposal.

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5

COURSE POLICY STATEMENT AND SYLLABUS
CSC 612 – ADVANCED DATABASE SYSTEM CONCEPTS
Spring 2016

INSTRUCTOR: Dr. Jamil Saquer

OFFICE: 211B Cheek Hall, **Phone:** 836-8745

E-Mail: JamilSaquer@missouristate.edu

Course Web Page: <http://courses.missouristate.edu/JamilSaquer/csc335.html>

LECTURES: MWF 9:05 am - 9:55 am, in Hill Hall 002

OFFICE HOURS: M, W 12:15 pm - 01:15 pm

T 12:30 pm – 1:30 pm

R 9:00 am – 10:00 am

PREREQUISITE: None (assuming the ability to program in a high level programming language)

REQUIRED TEXTBOOK: Database System Concepts, 6th edition
By: Silberschatz, Korth, and Sudarshan

COURSE DESCRIPTION: A study of modern database systems and their underlying concepts. Topics include the relational model, SQL, database design theory, file structures, query processing, transactions, and concurrency. A student cannot receive credits for both CSC 325 and CSC 612.

ATTENDANCE POLICY: Students should make every effort not to miss class. There is always a possibility of missing important information if you skip class. Furthermore, students who skip class usually do not do as well as those who do not. Students are responsible for everything covered and announced during lectures.

EXAMINATIONS: There will be two hourly exams and a final for this course. The dates for the exams are given in the approximate schedule below. Make up exams will be given only in case of valid and justified reasons such as illness. A student must notify and arrange with the instructor before the exam's scheduled date if s/he must miss an exam. Failure to do so will result in receiving a zero grade for the exam.

GRADING PROCEDURE: A student's grade in this course is determined from his/her performance on the scheduled examinations, on approximately 5 or 6 homework assignments, and on a term paper. **In order to receive a passing grade for the course, a student must receive a passing average on the exams and a passing average on the homework assignments.**

LATE HOMEWORK: Homework is due **at the beginning of the class** on the due date. Homework that is turned-in after the start of class is considered 1 day late. Late homework will be penalized as follows: 1 day late 10% penalty; 2 days late 20% penalty; after 2 days no credit will be given for a late assignment. A weekend counts as two days even if the work is turned in on Saturday. Homework that is habitually late will not be accepted.

MARKS DISTRIBUTION:

Three Exams	20% each
Homework Assignments	30%
Term Paper	10%

GRADING SCALE: Letter grades will be determined as follows:
90% ≤ A
80% ≤ B < 90%
70% ≤ C < 80%
60% ≤ D < 70%
F < 60%

IMPORTANT DATES:

January 18	Martin Luther King Jr. Holiday
February 15	Presidents' Day Holiday
March 4	Mid Semester
March 7-13	Spring Break
March 24-25	Spring Holiday
April 8	Last Day to Drop
May 5	Last Day of Classes
Final Exam	Monday May 9 at 8:45 am, in Hill Hall 002

Approximate Schedule (Subject to Change)

Week	Lecture	Textbook Reading
1	Introduction	Chapter 1
2	Relational Model	Chapter 2
3	Relational Algebra	6.1.1 – 6.1.3
4	Relational Algebra	6.1.1 – 6.1.3
5	Introduction to SQL	Chapter 3
6	Introduction to SQL February 19: Exam 1	Chapter 3
7	Intermediate SQL	Chapter 4
8	Triggers Using MySQL in Python	5.3
9	E-R Data Model	7.1, 7.2, 7.3
10	E-R Data Model	7.4-7.8.6
11	Relational-Database Design April 1: Exam 2	8.1-8.5
12	Relational-Database Design	8.1-8.5
13	Indexing and Hashing	Chapter 11
14	Transactions	Chapter 14
15	Transactions	Chapter 14
16	Concurrency Control	15.1.1-3, 15.2, 15.4
Monday, May 9 th , 8:45 am	Final Exam	

Academic Integrity Policy: MSU is a community of scholars committed to the ideal of academic integrity. All members of the University community share the responsibility and authority to challenge and make known acts of apparent academic dishonesty. Any of the following acts constitutes academic dishonesty:

- **Cheating:** refers to using or attempting to use unauthorized materials, information, or study aids in any academic exercise.
- **Fabrication:** refers to unauthorized falsification or invention of any information (including research data) or any citation in any academic exercise.
- **Plagiarism:** includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work or sections of a work of another person without full and clear acknowledgement. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials, including material taken from or ordered through the Internet.
- **Facilitating academic dishonesty:** assisting or attempting to assist another to violate any provision of the MSU Academic Integrity Policy, whether or not that action is associated with any particular course.

Any student detected participating in any form of academic dishonesty in this course will be subject to the following sanctions:

- Denying credit on an assignment and/or examination
- Requiring additional assignments and/or examinations
- Lowering the course grade
- Receiving a failing course grade (F)
- Receiving a failing course grade of XF, which indicates the failing grade was due to academic dishonesty. This grade will remain on the transcript for at least one year.
- The instructor of this course may send written notification of any sanctions imposed to the Academic Integrity Council, so that repeat offenders may be detected.

- In addition to these sanctions, the instructor of this course may request that the Academic Integrity Council impose more severe sanctions, up to and including expulsion from the University. No grade-related sanction may be imposed until a student admits misconduct and/or forgoes appeal rights, or is found in violation by the Academic Integrity Council. Each student should carefully review the *Student Academic Integrity Policies and Procedures*; also available at the Reserves Desk (Meyer Library), and in abbreviated form in the *MSU Undergraduate Catalog*."

Disability Accommodation Policy: To request academic accommodations for a disability, contact the Director of Disability Services, Plaster Student Union, Suite 405, (417) 836-4192 or (417) 836-6792 (TTY), <http://www.missouristate.edu/disability/>. Students are required to provide documentation of disability to Disability Services prior to receiving accommodations. Disability Services refers some types of accommodation requests to the Learning Diagnostic Clinic, which also provides diagnostic testing for learning and psychological disabilities. For information about testing, contact the Director of the Learning Diagnostic Clinic, (417) 836-4787, <http://psychology.missouristate.edu/lcd/>.

Nondiscrimination Policy: Missouri State University is an equal opportunity/affirmative action institution, and maintains a grievance procedure available to any person who believes he or she has been discriminated against. At all times, it is your right to address inquiries or concerns about possible discrimination to the Office for Equity and Diversity, Park Central Office Building, 117 Park Central Square, Suite 111, (417) 836-4252. Other types of concerns (i.e., concerns of an academic nature) should be discussed directly with your instructor and can also be brought to the attention of your instructor's Department Head.

Computer Use: The MSU Disciplinary Code prohibits students from unauthorized access or use of University computers, computer systems, or networks. The Computer Science Department feels that any student who uses any ID or password other than that which has been officially assigned to him or her, or who accesses unauthorized files, is in violation of the Disciplinary Code. Any student found guilty of this violation may have all access rights to University computers removed immediately and continue to have their access rights removed for the following semester. A repeat offense may cause permanent revocation of all access rights. The University may take disciplinary action in addition to those mentioned above.

Policy on Use of Cell Phones and/or Other Communication Devices in Classes: As a member of the learning community, each student has a responsibility to other students who are members of the community. When cell phones or pagers ring and students respond in class or leave class to respond, it disrupts the class. Therefore, the Office of the Provost prohibits the use by students of cell phones, pagers, PDAs, or similar communication devices during scheduled classes. All such devices must be turned off or put in a silent (vibrate) mode and ordinarily should not be taken out during class. Given the fact that these same communication devices are an integral part of the University's emergency notification system, an exception to this policy would occur when numerous devices activate simultaneously. When this occurs, students may consult their devices to determine if a university emergency exists. If that is not the case, the devices should be immediately returned to silent mode and put away. Other exceptions to this policy may be granted at the discretion of the instructor.

Sanctions for violation of this policy are determined by the instructor and may include dismissal from the class—see Class Disruption (<http://www.missouristate.edu/registrar/catalog/classdis.html>).

In testing situations, use of cell phones or similar communication devices, or any other electronic or data storage device for other than university emergencies, may lead also to a charge of academic dishonesty and additional sanctions under the *Student Academic Integrity Policies and Procedures*.

There are two appeal processes available to students. A sanction for class disruption may be appealed using the appeal process stated in the Class Disruption policy; however, a violation that involves a charge of academic dishonesty must be appealed using the process described in the *Student Academic Integrity Policies and Procedures*.

Emergency Response: Students who require assistance during an emergency evacuation must discuss their needs with their professors and Disability Services. If you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible.



For additional information students should contact the Office of Disability Services, 836-4192 (PSU 405), or Larry Combs, Interim Assistant Director of Public Safety and Transportation at 836-6576. For further information on Missouri State University's Emergency Response Plan, please refer to the following web site: <http://www.missouristate.edu/safetran/erp.htm>.

Dropping a Class: It is your responsibility to understand the University's procedure for dropping a class. If you stop attending this class but do not follow proper procedure for dropping the class, you will receive a failing grade and will also be financially obligated to pay for the class. For information about dropping a class or withdrawing from the university, contact the Office of the Registrar at 836-5520.

MissouriState.

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Curricular Action Workflow

Missouri State > Computer Services - MIS > Curricular Action Workflow > CAW - New Course Proposal Form

New Course Proposal FormSubmitted on 08/15/2016 by Lloyd Smith (Lloydsmith@missouristate.edu).***All fields require input**

- New COURSE
- New REGULAR PERMANENT SECTION of an existing variable content course. If a new regular section of an existing variable topics course, enter the existing course number below

Course Code:

CSC

Course Number: (Check Availability)

613

Course Title:

Computer Systems Fundamentals

Will this proposal need to be reviewed by CGEIP? No YesWill this proposal need to be reviewed by EPPC? No Yes

Prerequisite/Co-requisite or enter 'None':

None

General Course Description: (Include any Pass/Not Pass grading restrictions, repeatable limits, limitation on course applicability, UG/GR parallel course, etc.)

An integrated introduction to computer systems fundamentals. Topics include computer architecture and major components, operating system concepts and implementation techniques (processes, threads, memory management, and distributed systems), and network theory, concepts and techniques. May be taught concurrently with CSC 344. Cannot receive credit for both CSC 344 and CSC 613.

Credit Hours:

3

Lecture Contact Hours:

0

Lab Contact Hours:

0

Note: If variable credit, enter the highest number and add to end of course description. (e.g. "Variable credit, may be taken 1-3 hours.")

Periodicity. Check all that apply.

- Fall Fall (even-numbered years only) Fall (odd-numbered years only)



- Spring Spring (even-numbered years only) Spring (odd-numbered years only)
- Summer On Demand only

Complete Catalog Description:

CSC 613 Computer Systems Fundamentals

Prerequisite: None

An integrated introduction to computer systems fundamentals. Topics include computer architecture and major components, operating system concepts and implementation techniques (processes, threads, memory management, and distributed systems), and network theory, concepts and techniques. May be taught concurrently with CSC 344. Cannot receive credit for both CSC 344 and CSC 613.

Credit hours: 3 Lecture contact hours: 0 Lab contact hours: 0

Typically offered: Fall, Spring

Include sample syllabus (list topics, course goals.) Use text box OR upload only file types of PDF, DOC or DOCX.

Attached

Purpose of Course

To teach basic concepts of computer systems to students in the proposed CSC MS program who have not had a corresponding course in their undergraduate programs.

Relationship to Other Departments

None

Is there a graduate/undergraduate parallel course to this one? No Yes

Enter parallel course number

CSC344 Computer Systems Fundamentals

How do these classes differ?

CSC 613 will require students to read research literature and write reports on that literature

New Course Resource Information

Anticipated Average Enrollment per section:	<input type="text" value="5"/>	Maximum Enrollment Limit per section:	<input type="text" value="20"/>
Anticipated Average Enrollment per semester:	<input type="text" value="5"/>	Maximum Enrollment Limit per semester:	<input type="text" value="20"/>
Anticipated Average Enrollment per year:	<input type="text" value="10"/>	Maximum Enrollment Limit per year:	<input type="text" value="40"/>
Faculty Load Assignment (equated hours):	<input type="text" value="3"/>		

Is another course being deleted? No Yes

What will this course require in the way of:

Additional library Holdings

6

None

Additional computer resources

None

Additional or remodeled facilities

None

Additional equipment or supplies

None

Additional travel funds

None

Additional faculty; general vs specialized

None

Additional faculty; regular vs per-course

None

Other additional expenses

None

If additional faculty are not required, how will faculty be made available to teach this course?

Will be taught concurrently with the parallel undergraduate course (CSC 344). The instructor will receive only one load credit for the concurrent courses.

List names of current faculty qualified and available to teach this course

Dr Anthony Clark
 Dr Hui Liu
 Dr Razib Iqbal
 Dr Ken Vollmar
 Dr Yang Wang

What is the anticipated source of students for this course?

Students enrolled in the proposed CSC MS program

If from within the department, will students be taking this course in addition to or in place of other courses?

In addition to other courses

If from outside the department, which courses in other departments would most likely be affected?

N/A

Other comments:

Most Incoming graduates with degrees in Computer Science will have had an equivalent course in their undergraduate program. For that reason, we don't expect demand to be high for this course and we believe the enrollment can be absorbed in the parallel undergraduate sections.

6

What is the date that this new course was approved by departmental or program faculty? (MM/DD/YYYY)

06/15/2016

Current Status:

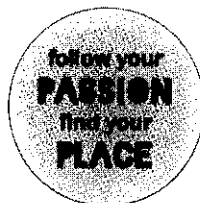
Dean Review

Proposal Progress:

08/15/2016 - Submitted by Department Head (Kenneth Vollmar)

Review Comments:

No comments have been added to this proposal.



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6

Computer Science 613: Computer Systems Fundamentals

Instructor: TBA **Office:** **Phone:** **Email:**

Class meeting times: TBA

Course Description: An integrated introduction to computer systems fundamentals. Topics include computer architecture and major components, operating system concepts and implementation techniques (processes, threads, memory management, and distributed systems), and network theory, concepts and techniques. May be taught concurrently with CSC 344. Cannot receive credit for both CSC 344 and CSC 613.

Course Pre-requisites: None (assumes ability to program in a high level language)

Required Text: Ramachandran and Leahy Jr., Computer Systems: An Integrated Approach to Architecture and Operating Systems, Addison-Wesley, 2010

EDUCATIONAL OUTCOMES

1. Students will understand how computer architecture affects software design and development
2. Students will understand how operating systems control system resources
3. Students will be able to write programs that interface with the operating system
4. Students will understand basic concepts of networking and the use of network protocols
5. Students will be able to write distributed programs
6. Students will understand basic concepts of computer system and network security

MAJOR TOPICS

- | | |
|--------------------------|----------------------|
| 1. Computer architecture | 4. Security |
| 2. Memory management | 5. Network protocols |
| 3. Threads and processes | |

ASSIGNMENTS

1. Write programs that make use of operating system services
2. Write distributed programs using standard network protocols
3. Read and report on research literature related to course topics
4. Group project and presentation

EVALUATION

- | | |
|---|------------------------------------|
| 1. Assignments (6; one will be dropped) 25% | 4. Research literature reports 15% |
| 2. Tests (midterm and final exam) 20% | 5. Group projects (3) 25% |
| 3. Biweekly "checkup" 15% | |

This class will not use +/- grading: your grade will be A, B, C, D, or F

Assignments must be turned in by the due date; late work will not be accepted

ATTENDANCE POLICY

Attendance is not recorded. Attendance is expected at exams (announced one week in advance) and Biweekly "checkup" (every 2nd Friday beginning week 2). In any event you are responsible for any information presented and announcements made in class. Late arrival and early departure is discouraged as rude to your fellow computer scientists.

Missouri State.



Curricular Action Workflow



Missouri State > Computer Services - MIS > Curricular Action Workflow > CAW - New Course Proposal Form

New Course Proposal Form

Submitted on 08/15/2016 by Razib Iqbal (Riqbal@MissouriState.edu).

*All fields require input

- New COURSE
New REGULAR PERMANENT SECTION of an existing variable content course. If a new regular section of an existing variable topics course, enter the existing course number below

Course Code: CSC Course Number: (Check Availability) 701

Course Title: Seminar I

Will this proposal need to be reviewed by CGEIP? No Yes

Will this proposal need to be reviewed by EPPC? No Yes

Prerequisite/Co-requisite or enter 'None': None.

General Course Description: (Include any Pass/Not Pass grading restrictions, repeatable limits, limitation on course applicability, UG/GR parallel course, etc.)

Computer Science literature and research methods. Students will read research literature in Computer Science and make presentations describing that research. Students will attend presentations by faculty.

Credit Hours: 1 Lecture Contact Hours: 1 Lab Contact Hours: 0

Note: If variable credit, enter the highest number and add to end of course description. (e.g. "Variable credit, may be taken 1-3 hours.")

Periodicity. Check all that apply.

- Fall, Spring, Fall (even-numbered years only), Spring (even-numbered years only), Fall (odd-numbered years only), Spring (odd-numbered years only)

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Summer On Demand only

Complete Catalog Description:

CSC 701 Seminar I

Prerequisite: None.

Computer Science literature and research methods. Students will read research literature in Computer Science and make presentations describing that research. Students will attend presentations by faculty, visitors, and other students. Graded Pass/Not Pass only.

Credit hours: 1 Lecture contact hours: 1 Lab contact hours: 0

Typically offered: Fall

Include sample syllabus (list topics, course goals.) Use text box OR upload only file types of PDF, DOC or DOCX.

Attached

Purpose of Course

This is one of the two core courses for the MS in Computer Science degree program.

Relationship to Other Departments

None.

Is there a graduate/undergraduate parallel course to this one? No Yes

New Course Resource Information

Anticipated Average Enrollment per section: 50 Maximum Enrollment Limit per section: 50

Anticipated Average Enrollment per semester: 50 Maximum Enrollment Limit per semester: 50

Anticipated Average Enrollment per year: 50 Maximum Enrollment Limit per year: 50

Faculty Load Assignment (equated hours): 1

Is another course being deleted? No Yes

What will this course require in the way of:

Additional library Holdings

None.

Additional computer resources

None.

Additional or remodeled facilities

None.

Additional equipment or supplies

None.

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Additional travel funds

None.

Additional faculty; general vs specialized

None beyond those requested as part of this new MS in CS program proposal.

Additional faculty; regular vs per-course

None beyond those requested as part of this new MS in CS program proposal.

Other additional expenses

None.

If additional faculty are not required, how will faculty be made available to teach this course?

Existing faculty, or possibly a new hire in 2017/2018 as part of the new program hire.

List names of current faculty qualified and available to teach this course

Dr. Lloyd Smith
Dr. Ken Vollmar
Dr. Razib Iqbal

What is the anticipated source of students for this course?

MS CS Majors

If from within the department, will students be taking this course in addition to or in place of other courses?

In addition.

If from outside the department, which courses in other departments would most likely be affected?)

Not Applicable.

Other comments:

Please feel free to contact Dr. Ken Vollmar or Dr. Lloyd Smith if you have any questions.

What is the date that this new course was approved by departmental or program faculty? (MM/DD/YYYY)

06/15/2016

Current Status:

Dean Review

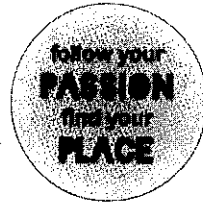
Proposal Progress:

08/15/2016 - Submitted by Department Head (Kenneth Vollmar)

Review Comments:

No comments have been added to this proposal.

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7

CSC 701 Seminar I

Instructor: Dr Lloyd Smith **Office:** CHEK 316 **Phone:** 836-4834 **Email:** lloydsmith@missouristate.edu

Class meeting times: TBA

Course Description: Computer Science literature and research methods. Students will read research literature in Computer Science and make presentations describing that research. Students will attend presentations by faculty, visitors, and other students. Graded Pass/Not Pass only. 1 credit hour (1-0).

Course Pre-requisites:

Text: None

SPECIFIC STUDENT LEARNING OUTCOMES

Students will be able to

1. Read and understand research literature in Computer Science
2. Make technical presentations reporting research results
3. Present Computer Science research in a form suitable for professional and public forums

MAJOR TOPICS

1. Areas of research in Computer Science
2. Major journals and conferences
3. Experimental methods
4. Presenting research

EVALUATION

- | | |
|----------------------------------|-----|
| 1. Presentations: | 40% |
| 2. Attendance and participation: | 60% |

Missouri State.**Curricular Action Workflow**

Missouri State > Computer Services - MIS > Curricular Action Workflow > CAW - New Course Proposal Form

New Course Proposal Form

Submitted on 08/15/2016 by Razib Iqbal (Riqbal@MissouriState.edu).

***All fields require input** New COURSE New REGULAR PERMANENT SECTION of an existing variable content course. If a new regular section of an existing variable topics course, enter the existing course number below

Course Code:

CSC

Course Number: (Check Availability)

702

Course Title:

Seminar II

Will this proposal need to be reviewed by CGEIP? No YesWill this proposal need to be reviewed by EPPC? No Yes

Prerequisite/Co-requisite or enter 'None':

CSC 701

General Course Description: (Include any Pass/Not Pass grading restrictions, repeatable limits, limitation on course applicability, UG/GR parallel course, etc.)

Continuation of CSC 701 with a focus on tools and methods for data analysis. Students will make oral presentations that report experimental results and will attend presentations by faculty, visitors, and other students. Graded Pass/Not Pass only.

Credit Hours:

2

Lecture Contact Hours:

2

Lab Contact Hours:

0

Note: If variable credit, enter the highest number and add to end of course description. (e.g. "Variable credit, may be taken 1-3 hours.")

Periodicity. Check all that apply.



Fall



Fall (even-numbered years only)



Fall (odd-numbered years only)

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- Spring Spring (even-numbered years only) Spring (odd-numbered years only)
- Summer On Demand only

Complete Catalog Description:

CSC 702 Seminar II -

Prerequisite: CSC 701

Continuation of CSC 701 with a focus on tools and methods for data analysis. Students will make oral presentations that report experimental results and will attend presentations by faculty, visitors, and other students. Graded Pass/Not Pass only.

Credit hours: 2 Lecture contact hours: 2 Lab contact hours: 0

Typically offered: Spring

Include sample syllabus (list topics, course goals.) Use text box OR upload only file types of PDF, DOC or DOCX.

Attached

Purpose of Course

This is one of the two core courses for the MS in Computer Science degree program.

Relationship to Other Departments

None

Is there a graduate/undergraduate parallel course to this one? No Yes

New Course Resource Information

Anticipated Average Enrollment per section:	50	Maximum Enrollment Limit per section:	50
Anticipated Average Enrollment per semester:	50	Maximum Enrollment Limit per semester:	50
Anticipated Average Enrollment per year:	50	Maximum Enrollment Limit per year:	50
Faculty Load Assignment (equated hours):	2		

Is another course being deleted? No Yes

What will this course require in the way of:

Additional library Holdings

None

Additional computer resources

None

Additional or remodeled facilities

None

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Additional equipment or supplies

None.

Additional travel funds

None.

Additional faculty; general vs specialized

None beyond those requested as part of this new MS in CS program proposal.

Additional faculty; regular vs per-course

None beyond those requested as part of this new MS in CS program proposal.

Other additional expenses

None.

If additional faculty are not required, how will faculty be made available to teach this course?

Existing faculty, or possibly a new hire in 2017/2018 as a part of the proposed new program faculty lines.

List names of current faculty qualified and available to teach this course

Dr. Lloyd Smith
Dr. Ken Vollmar
Dr. Razib Iqbal

What is the anticipated source of students for this course?

MS CS Majors

If from within the department, will students be taking this course in addition to or in place of other courses?

In addition.

If from outside the department, which courses in other departments would most likely be affected?

None.

Other comments:

Please feel free to contact Dr. Ken Vollmar or Dr. Lloyd Smith if you have any questions.

What is the date that this new course was approved by departmental or program faculty? (MM/DD/YYYY)

06/15/2016

Current Status:

Dean Review

8

Proposal Progress:

08/15/2016 - Submitted by Department Head (Kenneth Vollmar)

Review Comments:

No comments have been added to this proposal.



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8

CSC 702 Seminar II

Instructor: Dr Lloyd Smith **Office:** CHEK 316 **Phone:** 836-4834 **Email:** lloydsmith@missouristate.edu

Class meeting times: TBA

Course Description: Continuation of CSC 701 with a focus on tools and methods for data analysis. Students will make oral presentations that report experimental results and will attend presentations by faculty, visitors, and other students. Graded Pass/Not Pass only. 2 credit hour (2-0).

Course Pre-requisites: CSC 701

Text: None

SPECIFIC STUDENT LEARNING OUTCOMES

Students will be able to

1. Plan and carry out experiments
2. Select and use appropriate computational tools to analyze experimental results
3. Clearly report experimental results in a form suitable for technical conferences and workshops

MAJOR TOPICS

1. Experimental methods
2. Computational tools for analyzing data
3. Oral presentation of experimental results

EVALUATION

- | | |
|----------------------------------|-----|
| 1. Presentations: | 40% |
| 2. Attendance and participation: | 60% |

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Missouri State

Curricular Action Workflow



Missouri State > Computer Services - MIS > Curricular Action Workflow > CAW - New Course Proposal Form

New Course Proposal Form

Submitted on 08/15/2016 by Jamil Saquer (jamilsaquer@missouristate.edu).

*All fields require input

- New COURSE
- New REGULAR PERMANENT SECTION of an existing variable content course. If a new regular section of an existing variable topics course, enter the existing course number below

Course Code: CSC Course Number: (Check Availability) 735

Course Title: Data Analytics

Will this proposal need to be reviewed by CGEIP? No Yes

Will this proposal need to be reviewed by EPPC? No Yes

Prerequisite/Co-requisite or enter 'None': None

General Course Description: (Include any Pass/Not Pass grading restrictions, repeatable limits, limitation on course applicability, UG/GR parallel course, etc.)

Study of tools, techniques and frameworks for extracting useful information from large data. Study of machine learning algorithms for data analytics. Visual display of results.

Credit Hours: 3 Lecture Contact Hours: 3 Lab Contact Hours: 0

Note: If variable credit, enter the highest number and add to end of course description. (e.g. "Variable credit, may be taken 1-3 hours.")

Periodicity. Check all that apply.

- Fall Fall (even-numbered years only) Fall (odd-numbered years only)
- Spring Spring (even-numbered years only) Spring (odd-numbered years only)

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Summer On Demand only

Complete Catalog Description:

CSC 735 Data Analytics

Prerequisite: None

Study of tools, techniques and frameworks for extracting useful information from large data. Study of machine learning algorithms for data analytics. Visual display of results.

Credit hours: 3 Lecture contact hours: 3 Lab contact hours: 0

Typically offered: Fall (even-numbered years only)

Include sample syllabus (list topics, course goals.) Use text box OR upload only file types of PDF, DOC or DOCX.

See attached file. Attached

Purpose of Course

This course is a supporting elective course for the MS in computer science.

Relationship to Other Departments

None

Is there a graduate/undergraduate parallel course to this one? No Yes

New Course Resource Information

Anticipated Average Enrollment per section: 30 Maximum Enrollment Limit per section: 35

Anticipated Average Enrollment per semester: 30 Maximum Enrollment Limit per semester: 35

Anticipated Average Enrollment per year: 30 Maximum Enrollment Limit per year: 35

Faculty Load Assignment (equated hours): 3

Is another course being deleted? No Yes

What will this course require in the way of:

Additional library Holdings

None

Additional computer resources

None

Additional or remodeled facilities

None

Additional equipment or supplies

None

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Additional travel funds

None

Additional faculty; general vs specialized

None beyond what is specified in the MS proposal.

Additional faculty; regular vs per-course

None beyond what is specified in the MS proposal.

Other additional expenses

None

If additional faculty are not required, how will faculty be made available to teach this course?

MS Computer Science is a new program (see new program proposal). Additional, sufficient faculty are included with program startup.

List names of current faculty qualified and available to teach this course

Dr. Ken Vollmar

Dr. Lloyd Smith

Dr. Jamil Saquer

What is the anticipated source of students for this course?

Students enrolled in the CS MS program.

If from within the department, will students be taking this course in addition to or in place of other courses?

In addition.

If from outside the department, which courses in other departments would most likely be affected?

N/A

Other comments:

None

What is the date that this new course was approved by departmental or program faculty? (MM/DD/YYYY)

06/15/2016

Current Status:

Department Head Review

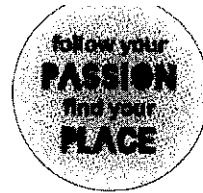
Proposal Progress:

This proposal is waiting for its first review.

Review Comments:

No comments have been added to this proposal.





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CSC 735 – Data Analytics

Instructor: Dr. Ken Vollmar
Office: 203 Cheek Hall
Phone: 836-5789
Email: KenVollmar@missouristate.edu
Office Hours: TBA

Catalog Course Description: Study of tools, techniques and frameworks for extracting useful information from large data. Study of machine learning algorithms for data analytics. Visual display of results.

Credit Hours: 3

Prerequisite: Data Structures and admission to computer science graduate program

Recommended Texts:

- **Introducing Data Science: Big data, machine learning, and more, using Python tools.** By Davy Cielen, Arno D. B. Meysman, and Mohamed Ali. Manning Publications, 2016. ISBN 9781633430037.
- **Big Data Science & Analytics: A Hands-On Approach.** By Arshdeep Bahga and Vijay Madisetti. VPT, 2016. ISBN: 9780996025539.

Major Topics

1. The data science process
2. Working with large data
3. Machine learning for data analytics
4. Text mining and analytics
5. Data visualization

Evaluation

1. Homework 40%
2. Midterm Exam 20%
3. Final Exam 20%
4. Group project and presentation 20%

This class will not use +/- grading: your grade will be A, B, C, D, or F. Assignments must be turned in by the due date; late work will not be accepted

Missouri State

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Curricular Action Workflow



Missouri State > Computer Services - MIS > Curricular Action Workflow > CAW - New Course Proposal Form

New Course Proposal Form

Submitted on 08/15/2016 by Lloyd Smith (Lloydsmith@missouristate.edu).

*All fields require input

New COURSE

New REGULAR PERMANENT SECTION of an existing variable content course. If a new regular section of an existing variable topics course, enter the existing course number below

Course Code:

CSC

Course Number: (Check Availability)

742

Course Title:

Evolutionary Computing

Will this proposal need to be reviewed by CGEIP? No Yes

Will this proposal need to be reviewed by EPPC? No Yes

Prerequisite/Co-requisite or enter 'None':

None

General Course Description: (Include any Pass/Not Pass grading restrictions, repeatable limits, limitation on course applicability, UG/GR parallel course, etc.)

Principles and applications of programs inspired by biological principles. Genetic algorithms and their use in search and optimization. Problem representation, operators, and control. Artificial life and the use of evolutionary computation in robotics.

Credit Hours:

3

Lecture Contact Hours:

3

Lab Contact Hours:

0

Note: If variable credit, enter the highest number and add to end of course description. (e.g. "Variable credit, may be taken 1-3 hours.")

Periodicity. Check all that apply.

- Fall Fall (even-numbered years only) Fall (odd-numbered years only)
- Spring Spring (even-numbered years only) Spring (odd-numbered years only)

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Summer On Demand only

Complete Catalog Description:

CSC 742 Evolutionary Computing

Prerequisite: None

Principles and applications of programs inspired by biological principles. Genetic algorithms and their use in search and optimization. Problem representation, operators, and control. Artificial life and the use of evolutionary computation in robotics.

Credit hours: 3 Lecture contact hours: 3 Lab contact hours: 0

Typically offered: Fall

Include sample syllabus (list topics, course goals.) Use text box OR upload only file types of PDF, DOC or DOCX.

[Text box containing sample syllabus content]

Attached

Purpose of Course

To serve as an elective in the proposed CSC MS program

Relationship to Other Departments

None

Is there a graduate/undergraduate parallel course to this one? No Yes

New Course Resource Information

Anticipated Average Enrollment per section:

30

Maximum Enrollment Limit per section:

35

Anticipated Average Enrollment per semester:

30

Maximum Enrollment Limit per semester:

35

Anticipated Average Enrollment per year:

30

Maximum Enrollment Limit per year:

35

Faculty Load Assignment (equated hours):

3

Is another course being deleted? No Yes

What will this course require in the way of:

Additional library Holdings

None

Additional computer resources

None

Additional or remodeled facilities

None

Additional equipment or supplies

None

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Additional travel funds

None

Additional faculty; general vs specialized

None beyond general faculty requested as part of the CSC MS program proposal

Additional faculty; regular vs per-course

None beyond faculty requested as part of the CSC MS program proposal

Other additional expenses

None

If additional faculty are not required, how will faculty be made available to teach this course?

This course will be part of a faculty member's standard load

List names of current faculty qualified and available to teach this course

Dr Anthony Clark

Dr Lloyd Smith

Dr Ken Vollmar

What is the anticipated source of students for this course?

Students enrolled in the CSC MS program

If from within the department, will students be taking this course in addition to or in place of other courses?

In addition to other courses

If from outside the department, which courses in other departments would most likely be affected?

N/A

Other comments:

None

What is the date that this new course was approved by departmental or program faculty? (MM/DD/YYYY)

06/15/2016

Current Status:

Dean Review

Proposal Progress:

08/15/2016 - Submitted by Department Head (Kenneth Vollmar)

Review Comments:

No comments have been added to this proposal.





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Computer Science 742: Evolutionary Computing

Instructor: Dr Anthony Clark **Office:** CHEK 203 **Phone:** TBD **Email:** tonyclark@missouristate.edu

Class meeting times: TBA

Course Description: Principles and applications of programs inspired by biological principles. Genetic algorithms and their use in search and optimization. Problem representation, operators, and control. Artificial life and the use of evolutionary computation in robotics.

Course Pre-requisites:

Required Text: Eiben, A. and James Smith. *Introduction to Evolutionary Computing, 2nd ed.*, Springer, 2015.

EDUCATIONAL OUTCOMES

1. Students will understand how computational problems can be solved using evolutionary principles
2. Students will be able to select an appropriate evolutionary algorithm to solve a computational problem
3. Students will be able to design and implement evolutionary algorithms
4. Students will be able to design experiments to test evolutionary solutions

MAJOR TOPICS

1. History of evolutionary computation
2. Problem representation
3. Evaluation functions
4. Genetic algorithms
5. Evolutionary programming
6. Applications in robotics
7. Multimodal problems

ASSIGNMENTS

1. Write programs using evolutionary principles
2. Read and report on research literature in evolutionary computing
3. Group project and presentation

EVALUATION

- | | | | |
|------------------------------|-----|-----------------------------------|-----|
| 1. Homework | 40% | 3. In-class quizzes and exercises | 10% |
| 2. Tests (midterm and final) | 30% | 4. Group project and presentation | 20% |

This class will not use +/- grading: your grade will be A, B, C, D, or F

Assignments must be turned in by the due date; late work will not be accepted

Missouri State.**Curricular Action Workflow**

Missouri State > Computer Services - MIS > Curricular Action Workflow > CAW - New Course Proposal Form

New Course Proposal FormSubmitted on 08/15/2016 by Lloyd Smith (Lloydsmith@missouristate.edu).***All fields require input**

- New COURSE
- New REGULAR PERMANENT SECTION of an existing variable content course. If a new regular section of an existing variable topics course, enter the existing course number below

Course Code:

CSC

Course Number: (Check Availability)

745

Course Title:

Advanced Multimedia Programming

Will this proposal need to be reviewed by CGEIP? No YesWill this proposal need to be reviewed by EPPC? No Yes

Prerequisite/Co-requisite or enter 'None':

None

General Course Description: (Include any Pass/Not Pass grading restrictions, repeatable limits, limitation on course applicability, UG/GR parallel course, etc.)

Course Description: Advanced aspects of computer-based multimedia. Topics may differ from semester to semester but will be chosen from computer vision, speech recognition, gesture recognition, image and audio signal processing, data visualization, and multimedia information retrieval.

Credit Hours:

3

Lecture Contact Hours:

3

Lab Contact Hours:

0

Note: If variable credit, enter the highest number and add to end of course description. (e.g. "Variable credit, may be taken 1-3 hours.")

Periodicity. Check all that apply.

- Fall Fall (even-numbered years only) Fall (odd-numbered years only)

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- Spring
- Spring (even-numbered years only)
- Spring (odd-numbered years only)
- Summer
- On Demand only

Complete Catalog Description:

CSC 745 Advanced Multimedia Programming

Prerequisite: None

Course Description: Advanced aspects of computer-based multimedia. Topics may differ from semester to semester but will be chosen from computer vision, speech recognition, gesture recognition, image and audio signal processing, data visualization, and multimedia information retrieval.

Credit hours: 3 Lecture contact hours: 3 Lab contact hours: 0

Typically offered: Fall

Include sample syllabus (list topics, course goals.) Use text box OR upload only file types of PDF, DOC or DOCX.

Attached

Purpose of Course

This course supports the proposed MS program in Computer Science

Relationship to Other Departments

None

Is there a graduate/undergraduate parallel course to this one? No Yes

New Course Resource Information

Anticipated Average Enrollment per section:	30	Maximum Enrollment Limit per section:	35
Anticipated Average Enrollment per semester:	30	Maximum Enrollment Limit per semester:	35
Anticipated Average Enrollment per year:	30	Maximum Enrollment Limit per year:	35
Faculty Load Assignment (equated hours):	3		

Is another course being deleted? No Yes

What will this course require in the way of:

Additional library Holdings

None

Additional computer resources

None

Additional or remodeled facilities

None

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Additional equipment or supplies

None

Additional travel funds

None

Additional faculty; general vs specialized

None beyond general faculty requested as part of the CSC MS proposal

Additional faculty; regular vs per-course

None beyond faculty requested as part of the CSC MS program proposal

Other additional expenses

None

If additional faculty are not required, how will faculty be made available to teach this course?

This course will be part of a faculty member's standard load

List names of current faculty qualified and available to teach this course

Dr Razib Iqbal

Dr Jamil Saquer

Dr Lloyd Smith

What is the anticipated source of students for this course?

Students enrolled in the CSC MS program

If from within the department, will students be taking this course in addition to or in place of other courses?

In addition to other courses

If from outside the department, which courses in other departments would most likely be affected?

N/A

Other comments:

None

What is the date that this new course was approved by departmental or program faculty? (MM/DD/YYYY)

06/15/2016

Current Status:

Dean Review

Proposal Progress:

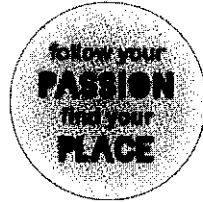
08/15/2016 - Submitted by Department Head (Kenneth Vollmar)

(11)

Review Comments:

No comments have been added to this proposal.

[Redacted comment area]



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Computer Science 745: Advanced Multimedia Programming

Instructor: Dr Lloyd Smith **Office:** CHEK 316 **Phone:** ext 6-4834 **Email:** lloydsmith@missouristate.edu

Class meeting times: TBA

Course Description: Advanced aspects of computer-based multimedia. Topics may differ from semester to semester but will be chosen from computer vision, speech recognition, gesture recognition, image and audio signal processing, data visualization, and multimedia information retrieval.

Course Pre-requisites: None (assumes ability to program in a high level language)

Required Text: None; there is a list of online resources on the class file server

EDUCATIONAL OUTCOMES

1. Students will be aware of Human perception and how it relates to computer-based multimedia systems
2. Students will understand multimedia data representation
3. Students will understand the use of multimedia capture devices such as cameras and microphones
4. Students will be able to design and implement multimedia applications

MAJOR TOPICS

1. Multimedia programming
2. Audio and image data representation
3. Human perception of sound and light
4. Signal processing (transforms, filters, etc)
5. Face detection and recognition
6. Object tracking in video
7. Speech and gesture user interfaces

ASSIGNMENTS

1. Write multimedia application programs
2. Group project and presentation

EVALUATION

- | | | | |
|------------------------------|-----|-----------------------------------|-----|
| 1. Homework | 40% | 3. In-class quizzes and exercises | 10% |
| 2. Tests (midterm and final) | 30% | 4. Group project and presentation | 20% |

This class will not use +/- grading: your grade will be A, B, C, D, or F

Assignments must be turned in by the due date; late work will not be accepted

ATTENDANCE POLICY

I will not keep formal attendance records in this class. I expect you to be in class when you are able; you are responsible for all material covered in classes you miss, as well as turning in all assignments due on those dates. You will not be allowed to make up exercises or a quiz or test unless you have arranged to do so with me prior to the date of the activity, or unless you have a university-recognized excused absence. At my discretion, additional homework may be substituted for make-up tests, or other tests or assignments may be more heavily weighted in order to replace the grade of a missed test for which you are excused.

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Missouri State

Curricular Action Workflow



Missouri State > Computer Services - MIS > Curricular Action Workflow > CAW - New Course Proposal Form

New Course Proposal Form

Submitted on 08/15/2016 by Kenneth Vollmar (Kenvollmar@missouristate.edu).

*All fields require input

- New COURSE
New REGULAR PERMANENT SECTION of an existing variable content course. If a new regular section of an existing variable topics course, enter the existing course number below

Course Code: CSC Course Number: (Check Availability) 746

Course Title: Human Computer Interaction

Will this proposal need to be reviewed by CGEIP? No Yes

Will this proposal need to be reviewed by EPPC? No Yes

Prerequisite/Co-requisite or enter 'None': None

General Course Description: (Include any Pass/Not Pass grading restrictions, repeatable limits, limitation on course applicability, UG/GR parallel course, etc.)

Research and practice in Human-Computer Interaction (HCI). Impact of human perception and cognition on user interface design. Tools for building graphical user interfaces (GUIs) and multimodal user interfaces incorporating speech and gesture. Research methods.

Credit Hours: 3 Lecture Contact Hours: 3 Lab Contact Hours: 0

Note: If variable credit, enter the highest number and add to end of course description. (e.g. "Variable credit, may be taken 1-3 hours.")

Periodicity. Check all that apply.

- Fall, Spring, Fall (even-numbered years only), Spring (even-numbered years only), Fall (odd-numbered years only), Spring (odd-numbered years only)

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Summer On Demand only

Complete Catalog Description:

CSC 746 Human Computer Interaction

Prerequisite: None

Research and practice in Human-Computer interaction (HCI). Impact of human perception and cognition on user interface design. Tools for building graphical user interfaces (GUIs) and multimodal user interfaces incorporating speech and gesture. Research methods.

Credit hours: 3 Lecture contact hours: 3 Lab contact hours: 0

Typically offered: Fall

Include sample syllabus (list topics, course goals.) Use text box OR upload only file types of PDF, DOC or DOCX.

Attached

Purpose of Course

This course is a supporting elective course for MS Computer Science degree program.

Relationship to Other Departments

This course differs in subject matter and depth of coverage from courses in other departments.

Is there a graduate/undergraduate parallel course to this one? No Yes

New Course Resource Information

Anticipated Average Enrollment per section:	<input type="text" value="30"/>	Maximum Enrollment Limit per section:	<input type="text" value="35"/>
Anticipated Average Enrollment per semester:	<input type="text" value="30"/>	Maximum Enrollment Limit per semester:	<input type="text" value="35"/>
Anticipated Average Enrollment per year:	<input type="text" value="30"/>	Maximum Enrollment Limit per year:	<input type="text" value="35"/>
Faculty Load Assignment (equated hours):	<input type="text" value="3"/>		

Is another course being deleted? No Yes

What will this course require in the way of:

Additional library Holdings

None

Additional computer resources

None

Additional or remodeled facilities

None

Additional equipment or supplies

None

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Additional travel funds

None

Additional faculty; general vs specialized

None

Additional faculty; regular vs per-course

None

Other additional expenses

None

If additional faculty are not required, how will faculty be made available to teach this course?

MS Computer Science is a new program (see new program proposal). Additional, sufficient faculty are included with program startup.

List names of current faculty qualified and available to teach this course

Dr. Razib Iqbal
 Dr. Lloyd Smith
 Dr. Ken Vollmar
 Dr. Yang Wang

What is the anticipated source of students for this course?

MS CS majors

If from within the department, will students be taking this course in addition to or in place of other courses?

In addition

If from outside the department, which courses in other departments would most likely be affected?

n/a

Other comments:

N/A

What is the date that this new course was approved by departmental or program faculty? (MM/DD/YYYY)

06/15/2016

Current Status:

Dean Review

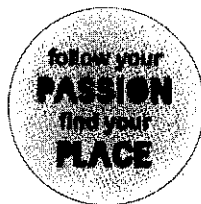
Proposal Progress:

08/15/2016 - Submitted by Department Head (Kenneth Vollmar)

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Review Comments:

No comments have been added to this proposal.



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Computer Science 746: Human-Computer Interaction

Instructor: Dr Lloyd Smith **Office:** CHEK 316 **Phone:** ext 6-4834 **Email:** lloydsmith@missouristate.edu
Class meeting times: TBA

Course Description: Research and practice in Human-Computer interaction (HCI). Impact of human perception and cognition on user interface design. Tools for building graphical user interfaces (GUIs) and multimodal user interfaces incorporating speech and gesture. Research methods.

Course Pre-requisites:

Required Text: *Human Computer Interaction: An Empirical Research Approach*, by I. Scott MacKenzie, Morgan Kaufmann, 2013

EDUCATIONAL OUTCOMES

1. Students will be able to read and understand research literature in the field of HCI
2. Students will understand how Human perception guides interface design
3. Students will be able to design and carry out HCI experiments
4. Students will be able to design and implement usable interfaces incorporating multiple modes of interaction

MAJOR TOPICS

- | | |
|--|-------------------------------------|
| 1. Historical context | 5. Graphical user interfaces (GUIs) |
| 2. Human perception and cognition | 6. Evaluating user interfaces |
| 3. Principles of user interface design | 7. Emerging interface technologies |
| 4. Modeling users and tasks | 8. Research in HCI |

ASSIGNMENTS

1. Read and report on research literature in HCI
2. Design and implement user interfaces
3. Group project and report

EVALUATION

- | | | | |
|------------------------------|-----|-----------------------------------|-----|
| 1. Homework | 40% | 3. In-class quizzes and exercises | 10% |
| 2. Tests (midterm and final) | 30% | 4. HCI group project and report | 20% |

This class will not use +/- grading: your grade will be A, B, C, D, or F

Assignments must be turned in by the due date; late work will not be accepted

ATTENDANCE POLICY

I will not keep formal attendance records in this class. I expect you to be in class when you are able; you are responsible for all material covered in classes you miss, as well as turning in all assignments due on those dates. You will not be allowed to make up exercises or a quiz or test unless you have arranged to do so with me prior to the date of the activity, or unless you have a university-recognized excused absence. At my discretion, additional homework may be substituted for make-up tests, or other tests or assignments may be more heavily weighted in order to replace the grade of a missed test for which you are excused.

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Missouri State.

Curricular Action Workflow



Missouri State > Computer Services - MIS > Curricular Action Workflow > CAW - New Course Proposal Form

New Course Proposal Form

Submitted on 08/15/2016 by Razib Iqbal (RIqbal@MissouriState.edu).

*All fields require input

- New COURSE
- New REGULAR PERMANENT SECTION of an existing variable content course. If a new regular section of an existing variable topics course, enter the existing course number below

Course Code: Course Number: (Check Availability)

Course Title:

Will this proposal need to be reviewed by CGEIP? No Yes

Will this proposal need to be reviewed by EPPC? No Yes

Prerequisite/Co-requisite or enter 'None':

General Course Description: (Include any Pass/Not Pass grading restrictions, repeatable limits, limitation on course applicability, UG/GR parallel course, etc.)

This course introduces fundamental technologies for multimedia coding, processing, and communications. Emphasize will be given on content representation, delivery over a variety of networks, and various applications including compression, adaptation, and authentication.

Credit Hours: Lecture Contact Hours: Lab Contact Hours:

Note: If variable credit, enter the highest number and add to end of course description. (e.g. 'Variable credit, may be taken 1-3 hours.')

Periodicity. Check all that apply.

- Fall
- Fall (even-numbered years only)
- Fall (odd-numbered years only)

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- Spring
 Spring (even-numbered years only)
 Spring (odd-numbered years only)
 Summer
 On Demand only

Complete Catalog Description:

CSC 747 Multimedia Communications

Prerequisite: None

This course introduces fundamental technologies for multimedia coding, processing, and communications. Emphasize will be given on content representation, delivery over a variety of networks, and various applications including compression, adaptation, and authentication.

Credit hours: 3 Lecture contact hours: 3 Lab contact hours: 0

Typically offered: Spring

Include sample syllabus (list topics, course goals.) Use text box OR upload only file types of PDF, DOC or DOCX.

Attached

Purpose of Course

This course is a supporting elective course for MS Computer Science degree program. Upon completion of the course, students shall possess a broad knowledge of various multimedia applications and communications systems. Students should be able to:

- Describe the technical characteristics, development process, and performance of various multimedia systems.
- Design creative applications for multimedia enabled computing devices.
- Carry out experiments on various multimedia systems.
- Interpret and analyze measurement results obtained from the multimedia systems and components.

Relationship to Other Departments

None

Is there a graduate/undergraduate parallel course to this one? No Yes

New Course Resource Information

Anticipated Average Enrollment per section:	<input type="text" value="30"/>	Maximum Enrollment Limit per section:	<input type="text" value="35"/>
Anticipated Average Enrollment per semester:	<input type="text" value="30"/>	Maximum Enrollment Limit per semester:	<input type="text" value="35"/>
Anticipated Average Enrollment per year:	<input type="text" value="30"/>	Maximum Enrollment Limit per year:	<input type="text" value="35"/>
Faculty Load Assignment (equated hours):	<input type="text" value="3"/>		

Is another course being deleted? No Yes

What will this course require in the way of:

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Additional library Holdings

None.

Additional computer resources

None.

Additional or remodeled facilities

None.

Additional equipment or supplies

None.

Additional travel funds

None.

Additional faculty; general vs specialized

None.

Additional faculty; regular vs per-course

None.

Other additional expenses

None.

If additional faculty are not required, how will faculty be made available to teach this course?

Faculty already hired in 2015/16 academic year.

List names of current faculty qualified and available to teach this course

Dr. Razib Iqbal

What is the anticipated source of students for this course?

MS CS majors.

If from within the department, will students be taking this course in addition to or in place of other courses?

In addition.

If from outside the department, which courses in other departments would most likely be affected?

Not applicable.

Other comments:

Please contact Dr. Ken Vollmar or Dr. Razib Iqbal if you have any questions. Thank you.

What is the date that this new course was approved by departmental or program faculty? (MM/DD/YYYY)

08/17/2016

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Current Status:

Dean Review

Proposal Progress:

08/15/2016 - Submitted by Department Head (Kenneth Vollmar)

Review Comments:

No comments have been added to this proposal.

[Redacted area]



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Missouri State

Computer Science Department

- **Course Code-Number:** CSC-747
- **Course Name:** Multimedia Communications
- **Pre-requisite:** None. Some exposure to MATLAB and C/JAVA programming language will be beneficial.
- **Credit Hours:** 3
- **Periodicity:** Spring semester
- **Instructor:** Dr. Razib Iqbal, Cheek Hall 211A, riqbal@missouristate.edu
- **Course Description:**

This course introduces fundamental technologies for multimedia coding, processing, and communications. Emphasize will be given on content representation, delivery over a variety of networks, and various applications including compression, adaptation, and authentication.

• **Purpose of the course:**

Upon completion of the course, students shall possess a broad knowledge of various multimedia applications and communications systems. Students should be able to:

- Describe the technical characteristics, development process, and performance of various multimedia systems.
- Design creative applications for multimedia enabled computing devices.
- Carry out experiments on various multimedia systems.
- Interpret and analyze measurement results obtained from the multimedia systems and components.

• **Suggested method for evaluating student performance:**

Take home assignments (10%), short quizzes (10%), student seminar (10%), group projects (60%), and final exam (10%).

• **Topics to be covered:**

- *Introduction to Multimedia*
 - Graphics and image data representation
 - Color in image and video
 - Fundamental concepts in analog and digital video
 - Basics of digital audio
- *Multimedia Data Compression*
 - Loseless and lossy compression basics
 - Fundamentals of video coding standards
- *Multimedia Communications and Networking*
 - Network services and protocols for multimedia communications
 - Multimedia content sharing and distribution over the wired and wireless networks

- Miscellaneous topics
 - Standards for audiovisual communication systems
 - Social media sharing
 - Cloud computing for multimedia services
 - Multimedia conferencing and collaboration tools
 - Multimedia security
- **Prescribed Textbooks:**
 1. Fundamentals of Multimedia (2/E). Authors: Li, Drew, and Liu. ISBN 978-3-319-05289-2, 2014.
 2. Digital Video Processing (2/E). Author: A. Murat Tekalp, ISBN-10: 0133991008, 2015.

Missouri State.**Curricular Action Workflow**

Missouri State > Computer Services - MIS > Curricular Action Workflow > CAW - New Course Proposal Form

New Course Proposal Form

Submitted on 08/15/2016 by Hui Liu (HuiLiu@missouristate.edu).

*All fields require input

 New COURSE New REGULAR PERMANENT SECTION of an existing variable content course. If a new regular section of an existing variable topics course, enter the existing course number below

Course Code:

CSC

Course Number: (Check Availability)

765

Course Title:

ubiquitous computing and internet of things

Will this proposal need to be reviewed by CGEIP? No YesWill this proposal need to be reviewed by EPPC? No Yes

Prerequisite/Co-requisite or enter 'None':

CSC 665 or equivalent course or background approved by the instructor

General Course Description: (Include any Pass/Not Pass grading restrictions, repeatable limits, limitation on course applicability, UG/GR parallel course, etc.)

An Introduction to some of the fundamental concepts and state-of-the-art research in the areas of ubiquitous computing (UbiComp). A significant portion of the course will cover the Internet of Things (IoT). Less emphasis will be given to the hardware and device level details. The major focus of this course is Internet Evolution and Wireless Technologies, Location Services in UbiComp, context-aware computing, privacy and security, wearable computing, mobile OS, IoT and data analytics, cloud computing. Students will learn to carry out research in UbiComp and IoT.

Credit Hours:

3

Lecture Contact Hours:

3

Lab Contact Hours:

0

Note: If variable credit, enter the highest number and add to end of course description. (e.g. "Variable credit, may be taken 1-3 hours.")

Periodicity. Check all that apply.

- Fall Fall (even-numbered years only) Fall (odd-numbered years only)
- Spring Spring (even-numbered years only) Spring (odd-numbered years only)
- Summer On Demand only

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Complete Catalog Description:

CSC 765 ubiquitous computing and internet of things

Prerequisite: CSC 665 or equivalent course or background approved by the instructor

An introduction to some of the fundamental concepts and state-of-the-art research in the areas of ubiquitous computing (UbiComp). A significant portion of the course will cover the Internet of Things (IoT). Less emphasis will be given to the hardware and device level details. The major focus of this course is Internet Evolution and Wireless Technologies, Location Services in UbiComp, context-aware computing, privacy and security, wearable computing, mobile OS, IoT and data analytics, cloud computing. Students will learn to carry out research in UbiComp and IoT.

Credit hours: 3 Lecture contact hours: 3 Lab contact hours: 0

Typically offered: Spring

Include sample syllabus (list topics, course goals.) Use text box OR upload only file types of PDF, DOC or DOCK.

Attached

Purpose of Course

This course is a supporting elective course for MS computer science degree program. this course provides the detailed Introduction to some of the fundamental concepts and state-of-the-art research in the areas of ubiquitous computing (UbiComp). After learning this course, students will understand the basics of building UbiComp systems and IoT; Students will be aware of emerging new research topics and advance prototyping techniques; Students will understand the use advanced prototyping techniques that are essential in modern programming and engineering; Students will be able to design and implement UbiComp application prototype.

Relationship to Other Departments

None

Is there a graduate/undergraduate parallel course to this one? No Yes

New Course Resource Information

Anticipated Average Enrollment per section:	<input type="text" value="30"/>	Maximum Enrollment Limit per section:	<input type="text" value="35"/>
Anticipated Average Enrollment per semester:	<input type="text" value="30"/>	Maximum Enrollment Limit per semester:	<input type="text" value="35"/>
Anticipated Average Enrollment per year:	<input type="text" value="30"/>	Maximum Enrollment Limit per year:	<input type="text" value="35"/>
Faculty Load Assignment (equated hours):	<input type="text" value="3"/>		

Is another course being deleted? No Yes

What will this course require in the way of:

14

Additional library Holdings

none

Additional computer resources

none

Additional or remodeled facilities

none

Additional equipment or supplies

none

Additional travel funds

none

Additional faculty; general vs specialized

none

Additional faculty; regular vs per-course

none

Other additional expenses

none

If additional faculty are not required, how will faculty be made available to teach this course?

MS Computer Science is a new program (see program proposal) additional sufficient faculty are included with program startup.

List names of current faculty qualified and available to teach this course

Dr. Hul Liu
Dr. Razib Iqbal
Dr. Lloyd Smith
Dr. Ken Vollmar

What is the anticipated source of students for this course?

MS CS majors

If from within the department, will students be taking this course in addition to or in place of other courses?

In addition

If from outside the department, which courses in other departments would most likely be affected?)

N/A

Other comments:

14

none

What is the date that this new course was approved by departmental or program faculty? (MM/DD/YYYY)

08/17/2016

Current Status:

Dean Review

Proposal Progress:

08/15/2016 - Submitted by Department Head (Kenneth Vollmar)

Review Comments:

No comments have been added to this proposal.



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Computer Science **CSC 765 ubiquitous computing and internet of things**
Spring 2018

Instructor: Dr. Liu Hui **Office:** CHEK 211C **Phone:** 4178365930 **Email:**
hui Liu@missouristate.edu

Class meeting times: TBA

Course Description: An introduction to some of the fundamental concepts and state-of-the-art research in the areas of ubiquitous computing (UbiComp). A significant portion of the course will cover the Internet of Things (IoT). Less emphasis will be given to the hardware and device level details. The major focus of this course is Internet Evolution and Wireless Technologies, Location Services in UbiComp, context-aware computing, privacy and security, wearable computing, mobile OS, IoT and data analytics, cloud computing. Students will learn to carry out research in UbiComp and IoT.

Course Pre-requisites: CSC 665 or equivalent course or background approved by the instructor

Required Text: None; there is a list of online resources and reference books on the class file server

EDUCATIONAL OUTCOMES

1. Students will understand the basics of building UbiComp systems and IoT
2. Students will be aware of emerging new research topics and advance prototyping techniques.
3. Students will understand the use advanced prototyping techniques that are essential in modern programming and engineering.
4. Students will be able to design and implement UbiComp application prototype

MAJOR TOPICS

- | | |
|---|-------------------------------|
| 1. Internet Evolution and Wireless Technologies | 6. Mobile affective computing |
| 2. Location in UbiComp | 7. Internet of Things. |
| 3. Context-aware Computing | 8. IoT and data analytics |
| 4. Privacy and security | 9. Mobile cloud computing |
| 5. Wearable computing | 10. Mobile OS and apps |

ASSIGNMENTS

1. Reading assignments and discussion leading
2. Group project and presentation

EVALUATION

- | | | | |
|--------------------|-----|-------------------------------------|-----|
| 1. Homework | 30% | 3. In-class quizzes and discussions | |
| 2. Tests (midterm) | 30% | | 10% |

14

4. Group project and presentation
30%

**This class will not use +/- grading: your grade will be A, B, C, D, or F
Assignments must be turned in by the due date; late work will not be
accepted**

IMPORTANT DATES RELEVANT TO THIS CLASS

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Jan 19 (Friday)	Last day to add or change sections without late fees
Mar 9 (Friday)	Midterm—Test 1 on Tuesday or Thursday
Mar 12-16	Spring break
Mar 29-30	Spring Holiday—no classes;
Apr ? (Friday)	Last day to withdraw from full-semester classes
May 10 (Thursday)	Last day of this class; Test 2
May 11 (Friday)	Study day—no classes
May? (?)	Project presentation

Course Policies

This course will be governed by all policies described in the Faculty Handbook and the Student Guidebook of Missouri State University.

Class participation and attendance

To receive maximum benefit from this course, you are expected to attend all classes, come prepared, and participate in the discussion, although there is no formal grade for attendance. Poor attendance will be reflected in poor performances on the exams. If a student misses a lecture session, it is the student's responsibility to obtain all information, materials, and assignments for a missed class.

Late day policy

All assignments are due at the beginning of the class period on each due date. *A late assignment will receive reduce credit of 10% for each 24-hour period (including weekends and holidays) after the due dates. A late assignment will not be accepted after that assignment has been graded and returned to the students unless prior arrangements have been made with the instructor.*

Make-up Tests

To make up missed tests due to absence, *advance notification and written documentation are required due to university excuse or medical reasons.*

University Policies

Nondiscrimination: Missouri State University is an equal opportunity/affirmative action institution, and maintains a grievance procedure available to any person who believes he or she has been discriminated against. At all times, it is your right to address inquiries or concerns about possible discrimination to the Office for Equity and Diversity, Park Central Office Building, 117 Park Central Square, Suite 111, (417) 836-4252. Other types of concerns (i.e., concerns of an academic nature) should be discussed directly with your instructor and can also be brought to the attention of your instructor's Department Head. Please visit the OED website at www.missouristate.edu/equity/.

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Disability Accommodation: To request academic accommodations for a disability, contact the Director of the Disability Resource Center, Plaster Student Union, Suite 405, (417) 836-4192 or (417) 836-6792 (TTY), www.missouristate.edu/disability. Students are required to provide documentation of disability to the Disability Resource Center prior to receiving accommodations. The Disability Resource Center refers some types of accommodation requests to the Learning Diagnostic Clinic, which also provides diagnostic testing for learning and psychological disabilities. For information about testing, contact the Director of the Learning Diagnostic Clinic, (417) 836-4787, <http://psychology.missouristate.edu/lcd>.

Academic Integrity Policy: Missouri State University is a community of scholars committed to developing educated persons who accept the responsibility to practice personal and academic integrity. You are responsible for knowing and following the university's *Student Academic Integrity Policies and Procedures*, available at www.missouristate.edu/policy/academicintegritystudents.htm. You are also responsible for understanding and following any additional academic integrity policies specific to this class (as outlined by the instructor). Any student participating in any form of academic dishonesty will be subject to sanctions as described in this policy. If you are accused of violating this policy and are in the appeals process, you should continue participating in the class.

Policy on Use of Cell Phones and/or Other Communication Devices in Classes: As a member of the learning community, each student has a responsibility to other students who are members of the community. When cell phones or pagers ring and students respond in class or leave class to respond, it disrupts the class. Therefore, the Office of the Provost prohibits the use by students of cell phones, pagers, PDAs, or similar communication devices during scheduled classes. All such devices must be turned off or put in a silent (vibrate) mode and ordinarily should not be taken out during class. Given the fact that these same communication devices are an integral part of the University's emergency notification system, an exception to this policy would occur when numerous devices activate simultaneously. When this occurs, students may consult their devices to determine if a university emergency exists. If that is not the case, the devices should be immediately returned to silent mode and put away. Other exceptions to this policy may be granted at the discretion of the instructor.

Emergency Response Statement

Students who require assistance during an emergency evacuation must discuss their needs with their professors and Disability Services. If you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible. For additional information students should contact the Disability Resource Center, 836-4192 (PSU 405), or Larry Combs, Interim Assistant Director of Public Safety and Transportation at 836-6576. For further information on Missouri State University's Emergency Response Plan, please refer to the following web site: <http://www.missouristate.edu/safetran/erp.htm>

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Dropping a class

It is your responsibility to understand the University's procedure for dropping a class. If you stop attending this class but do not follow proper procedure for dropping the class, you will receive a failing grade and will also be financially obligated to pay for the class. For information about dropping a class or withdrawing from the university, contact the Office of _____ the _____ Registrar at _____ 836-5520. Faculty may also wish to include relevant drop deadlines. See Academic Calendars (<http://calendar.missouristate.edu/academic.aspx>) for deadlines.

RELIGIOUS ACCOMMODATION

The University may provide a reasonable accommodation based on a person's sincerely held religious belief. In making this determination, the University reviews a variety of factors, including whether the accommodation would create an undue hardship. The accommodation request imposes responsibilities and obligations on both the individual requesting the accommodation and the University. Students who expect to miss classes, examinations, or other assignments as a consequence of their sincerely held religious belief shall be provided with a reasonable alternative opportunity to complete such academic responsibilities. It is the obligation of students to provide faculty with reasonable notice of the dates of religious observances on which they will be absent by submitting a Request for Religious Accommodation Form to the instructor by the end of the third week of a full semester course or the end of the second week of a half semester course.

Disclaimer

This syllabus represents a general plan for the course and deviations from this plan may be necessary during the semester. Modifications will be announced and discussed in class. Students are responsible for changes announced in class.

Missouri State.

Curricular Action Workflow



15

Missouri State > Computer Services - MIS > Curricular Action Workflow > CAW - New Course Proposal Form

New Course Proposal Form

Submitted on 08/15/2016 by Lloyd Smith (Lloydsmith@missouristate.edu).

*All fields require input

- New COURSE
- New REGULAR PERMANENT SECTION of an existing variable content course. If a new regular section of an existing variable topics course, enter the existing course number below

Course Code:

CSC

Course Number: (Check Availability)

790

Course Title:

Graduate Topics in Computer Science

Will this proposal need to be reviewed by CGEIP? No Yes

Will this proposal need to be reviewed by EPPC? No Yes

Prerequisite/Co-requisite or enter 'None':

None

General Course Description: (Include any Pass/Not Pass grading restrictions, repeatable limits, limitation on course applicability, UG/GR parallel course, etc.)

Variable content course with topics that can change from semester to semester. Topics may be identified by title in the schedule of classes. May be repeated if a different topic is offered.

Credit Hours:

4

Lecture Contact Hours:

4

Lab Contact Hours:

0

Note: If variable credit, enter the highest number and add to end of course description. (e.g. "Variable credit, may be taken 1-3 hours.")

Periodicity. Check all that apply.

- Fall Fall (even-numbered years only) Fall (odd-numbered years only)
- Spring Spring (even-numbered years only) Spring (odd-numbered years only)

15

Summer On Demand only

Complete Catalog Description:

CSC 790 Graduate Topics in Computer Science

Prerequisite: None

Variable content course with topics that can change from semester to semester. Topics may be identified by title in the schedule of classes. May be repeated if a different topic is offered.

Variable credit; may be offered 1-4 hours

Credit hours: 4 Lecture contact hours: 4 Lab contact hours: 0

Typically offered: On Demand only

Include sample syllabus (list topics, course goals.) Use text box OR upload only file types of PDF, DOC or DOCK.

Attached

Purpose of Course

Enables the department to try new courses before adding them to the curriculum or to deliver a course taught by a visitor with expertise outside the standard offerings. Supports the proposed CSC MS program.

Relationship to Other Departments

None

Is there a graduate/undergraduate parallel course to this one? No Yes

New Course Resource Information

Anticipated Average Enrollment per section:

30

Maximum Enrollment Limit per section:

35

Anticipated Average Enrollment per semester:

30

Maximum Enrollment Limit per semester:

35

Anticipated Average Enrollment per year:

30

Maximum Enrollment Limit per year:

35

Faculty Load Assignment (equated hours):

3

Is another course being deleted? No Yes

What will this course require in the way of:

Additional Library Holdings

None

Additional computer resources

None

Additional or remodeled facilities

None

15

Additional equipment or supplies

None

Additional travel funds

None

Additional faculty; general vs specialized

None beyond general faculty requested as part of the CSC MS proposal

Additional faculty; regular vs per-course

None beyond faculty requested as part of the CSC MS program proposal

Other additional expenses

None

If additional faculty are not required, how will faculty be made available to teach this course?

In any given semester, this course will be taught in place of another course or by a visitor who is available on a short-term basis

List names of current faculty qualified and available to teach this course

- Dr Anthony Clark
- Dr Razib Iqbal
- Dr Hui Liu
- Dr Jamil Saquer
- Dr Lloyd Smith
- Dr Ken Vollmar
- Dr Yang Wang

What is the anticipated source of students for this course?

Students enrolled in the CSC MS program

If from within the department, will students be taking this course in addition to or in place of other courses?

In addition to other courses

If from outside the department, which courses in other departments would most likely be affected?

N/A

Other comments:

None

What is the date that this new course was approved by departmental or program faculty? (MM/DD/YYYY)

06/15/2016

Current Status:

Dean Review

Proposal Progress:

08/15/2016 - Submitted by Department Head (Kenneth Vollmar)

Review Comments:

No comments have been added to this proposal.

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CSC 790 Graduate Topics in CS: Computational Analysis of Sports

Instructor: Dr Lloyd Smith **Office:** CHEK 316 **Phone:** 836-4834 **Email:** lloydsmith@smsu.edu

Class meeting times: TBA

Course Description: An introduction to the theory and techniques of sports data analysis. Students will write software to access and analyze sports data and make presentations describing conclusions drawn from their analyses. Primary focus will be on baseball but other sports will be considered depending on class interest.

Course Pre-requisites:

Required Texts: *Mathletics*, by Wayne L. Winston, Princeton University Press, 2009

Understanding Sabermetrics, by Gabriel Costa., Michael Huber, and John Saccoman, McFarland, 2007.

EDUCATIONAL OUTCOMES

1. Students will learn the theory underlying sports data analysis
2. Students will be able to write software to access and process data found on the web
3. Students will be able to write software to perform Monte Carlo or other simulations based on sports data
4. Students will be able to implement a variety of sports data analysis algorithms
5. Students will be able to select and apply appropriate data mining algorithms to analyze sports data

MAJOR TOPICS

1. History of sports data analysis
2. Accessing sports data
3. Evaluating offensive, pitching, and defensive performance in baseball
4. Cluster, classification, and network analysis of sports data
5. Park factors
6. Gambling in sports
7. Data analysis in football, basketball, and golf
8. Data analysis in other sports: Cricket, soccer, rugby union, etc, depending on class interest

EVALUATION

1. Programs: 40%
2. Presentations: 20%
3. Tests (midterm and final exam): 40%

Tests will be open book; you may use the text and your class notes

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Missouri State

Curricular Action Workflow



Missouri State > Computer Services - MIS > Curricular Action Workflow > CAW - Change Course Proposal Form

Change Course Proposal Form

Submitted on 08/29/2016 by Robin Powell (Robinpowell@missouristate.edu).

*All fields require input

This proposal applies to:

- An existing COURSE
- An existing REGULAR (e.g. permanent) SECTION of a variable content course.

Existing Course:

CSC482 Seminar in Computer Science

Will this proposal need to be reviewed by CGEIP? No Yes

Will this proposal need to be reviewed by EPPC? No Yes

Current online catalog description:

CSC 482 Seminar in Computer Science

Prerequisite: CSC 333; and CSC 460 or concurrent enrollment. Current trends and ethics in computer science with consideration given to future opportunities in the field. A written report and successful completion of the computer science assessment test will be required. Public Affairs Capstone Experience course. 1(1-0) F,S

Revise the current online catalog description as needed: (Strikethrough all deletions and insert/bold new information. Any content that is copied and pasted will lose existing formatting; please review prior to submission.)

CSC 482 Seminar in Computer Science

Prerequisite: ~~CSC 333; and CSC 460 or concurrent enrollment.~~ **Completion of 60 credit hours.** Current trends and ethics in computer science with consideration given to future opportunities in the field. A written report and successful completion of the computer science assessment test will be required. Public Affairs Capstone Experience course. 1(1-0) F,S

What is changing? Check all boxes that apply.

- Course Code
- Course Number (Check Availability)
- Title
- Prerequisite

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- Credit Hours/Contact Hours
- Periodicity
- Description

Reason for proposed change

Expand the opportunity for students to take this course.

Does this change affect course assessment (e.g. student learning evidence/outcomes)? No Yes

How did you determine the need for this change? Check all boxes that apply or specify other.

- Routine or annual review/assessment of curriculum
- Faculty Input
- Student Input
- Accreditation/certification compliance
- Review of catalog information
- Other (be specific):
- Check if this is a non-substantive change.

What is the date that this course change was approved by departmental or program faculty? (MM/DD/YYYY)

03/15/2016

Current Status:

College Council Review

Proposal Progress:

08/29/2016 - Submitted by Department Head (Kenneth Vollmar)

Review Comments:

No comments have been added to this proposal.

[Redacted comment box]



Missouri State.

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Curricular Action Workflow

Missouri State > Computer Services - MIS > Curricular Action Workflow > CAW - Delete Course Proposal Form

Delete Course Proposal FormSubmitted on 08/29/2016 by Robin Powell (Robinpowell@missouristate.edu).***All fields require input**

This proposal applies to:

- An existing COURSE
- An existing REGULAR (e.g. permanent) SECTION of a variable content course.

Existing Course:

CSC320 Computer Architecture

Will this proposal need to be reviewed by CGEIP? No YesWill this proposal need to be reviewed by EPPC? No Yes

Online catalog description.

Prerequisite: CSC 131. Introduction to the architecture and internal operation of computers, including assembly language. A study of the major components, functional organization, and sequential operation of digital computers during program execution. Several computer architectures will be studied. 4(4-0) F,S

Reason for proposed Deletion

This course has been replaced by other courses

How did you determine the need for this change? Check all boxes that apply or specify other.

- Routine or annual review/assessment of curriculum Faculty Input Student Input
- Accreditation/certification compliance Review of catalog information
- Other (be specific):

What is the date that this course change was approved by departmental or program faculty?

03/15/2016

Current Status:

College Council Review

Proposal Progress:

17

08/29/2016 - Submitted by Department Head (Kenneth Vollmar)

Review Comments:

No comments have been added to this proposal.



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Missouri State

Curricular Action Workflow



Missouri State > Computer Services - MIS > Curricular Action Workflow > CAW - Delete Course Proposal Form

Delete Course Proposal Form

Submitted on 08/29/2016 by Robin Powell (Robinpowell@missouristate.edu).

*All fields require input

This proposal applies to:

- An existing COURSE
- An existing REGULAR (e.g. permanent) SECTION of a variable content course.

Existing Course:

CSC460 Theory of Computer Operating Systems

Will this proposal need to be reviewed by CGEIP? No Yes

Will this proposal need to be reviewed by EPPC? No Yes

Online catalog description.

Prerequisite: CSC 320 and CSC 325. A study of the concepts and implementation techniques used on modern operating systems. Core topics include processes, threads, interprocess communication, deadlocks, memory management, file systems, I/O systems, security and distributed systems. 3(3-0) F,S

Reason for proposed Deletion

This course has been replaced by other courses.

How did you determine the need for this change? Check all boxes that apply or specify other.

- Routine or annual review/assessment of curriculum
- Faculty Input
- Student Input
- Accreditation/certification compliance
- Review of catalog information
- Other (be specific):

What is the date that this course change was approved by departmental or program faculty?

03/15/2016

Current Status:

College Council Review

Proposal Progress:

08/29/2016 - Submitted by Department Head (Kenneth Vollmar)

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Review Comments:

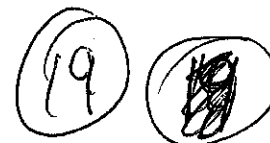
No comments have been added to this proposal.



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Missouri State.

Curricular Action Workflow



Missouri State > Computer Services - MIS > Curricular Action Workflow > CAW - Change Course Proposal Form

Change Course Proposal Form

Submitted on 07/12/2016 by Daniel Beckman (Danielbeckman@missouristate.edu).

*All fields require input

This proposal applies to:

- An existing COURSE
- An existing REGULAR (e.g. permanent) SECTION of a variable content course.

Existing Course:

BIO278 Marine Science II: Marine Biology Lab

Will this proposal need to be reviewed by CGEIP? No Yes

Will this proposal need to be reviewed by EPPC? No Yes

Current online catalog description:

BIO 278 Marine Science II: Marine Biology Lab

Prerequisite: concurrent enrollment in BIO 377. Laboratory portion of BIO 377. Must be taken at the Gulf Coast Research Laboratory, Ocean Springs, Mississippi. 2(0-4) Su

Revise the current online catalog description as needed: (Strikethrough all deletions and insert/bold new information. Any content that is copied and pasted will lose existing formatting; please review prior to submission.)

BIO 278 378 Marine Science II: Marine Biology Lab

Prerequisite: concurrent enrollment in BIO 377. Laboratory portion of BIO 377. Must be taken at the Gulf Coast Research Laboratory, Ocean Springs, Mississippi. 2(0-4) Su

What is changing? Check all boxes that apply.

- Course Code
- Course Number (Check Availability)
- Title
- Prerequisite
- Credit Hours/Contact Hours
- Periodicity
- Description

[Handwritten signature]

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Reason for proposed change

This is the lab that is associated with BIO 377. The lab section needs to be changed to match the lecture as a 300-level course.

Does this change affect course assessment (e.g. student learning evidence/outcomes)? No Yes

How did you determine the need for this change? Check all boxes that apply or specify other.

- Routine or annual review/assessment of curriculum
- Accreditation/certification compliance
- Other (be specific):
- Check if this is a non-substantive change.

- Faculty Input
- Student Input
- Review of catalog information

[Redacted area for 'Other (be specific)']

What is the date that this course change was approved by departmental or program faculty? (MM/DD/YYYY)

06/14/2016

Current Status:

College Council Review

Proposal Progress:

07/12/2016 - Submitted by Department Head (S Mathis)

Review Comments:

No comments have been added to this proposal.

[Redacted area]



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Missouri State.

Curricular Action Workflow



Missouri State > Computer Services - MIS > Curricular Action Workflow > CAW - New Interdisciplinary Program Proposal Form

New Interdisciplinary Program Proposal Form

Submitted on 03/03/2016 by Michael Suttmoeller (MSuttmoeller@MissouriState.edu).

This special form is to be used for internal Missouri State approval of a new Interdisciplinary program involving two or more academic departments/schools including graduate programs, undergraduate majors (comprehensive or non-comprehensive), minors, graduate certificates, undergraduate certificates.

New graduate programs, new undergraduate majors, and certificate programs involving more than 18 credit hours require approval by the CBHE as well as approval through the Missouri State curricular process. CBHE applications for such programs are processed through the Office of Institutional Research. All proposals for new programs requiring CBHE approval should progress through the Missouri State curricular process accompanied by a draft of the required CBHE documentation.

Only select departments with at least 9 hours or at least 30% of total program hours.

Sponsoring Department (1): (responsible for administration and budget)

Criminology & Criminal Justice

Sponsoring Department (2):

Biology

Sponsoring Department (3): (if applicable)

Sponsoring Department (4): (if applicable)

Proposed Program Title:

Conservation Law Enforcement

Choose One:

- Major (Non-Comprehensive/Graduate Program)
- Minor
- Graduate Certificate
- Undergraduate Certificate
- Master's Degree
- Comprehensive Major

Select Degree Type (or Select Graduate Certificate or Undergraduate Certificate):

UGCT - Undergraduate Certificate

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General Education Courses Required:

None

Total Hours: 0

General Education Courses Recommended:

None

Total Hours: 0

Requirements (including Admission) and Limitations for Specific Degree/Program:

Required:
 CRM 210 Introduction to the American Criminal Justice System
 CRM 365 Criminal Procedure
 CRM 400 Conservation Law Enforcement: New course proposal submitted on 2/19/16
 BIO 122 General Biology II
 BIO 373 Principles of Wildlife Management
 Students choose one:
 BIO 532 Principles of Fisheries Management
 BIO 561 Environmental Issues Education and Interpretation
 BIO 573 Ornithology
 BIO 575 Ichthyology
 BIO 576 Herpetology

Total Hours: 18-19

Prerequisites for Required Courses:

Prerequisites will be waived for students pursuing this certificate.

Recommended Electives:

BIO 121 or BIO 101/111

Total Hours: 4

Limitations on Electives:

None

Please attach the following documents: (only one file may be attached for each requirement; accepts file types of PDF, DOC or DOCX)

1. Statement of Rationale: Attached
2. Estimated costs for first five years: Attached
3. Complete catalog description (including new courses and course changes pending approval): Attached
4. CBHE Application (if applicable): Not Attached

*Note: For new programs requiring CBHE approval, CBHE forms NP, PS, and PG will satisfy #1 and CBHE form FP will satisfy #2.

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What is the date that this new program was approved by departmental or program faculty? (MM/DD/YYYY)

02/09/2016

Current Status:

College Council Review

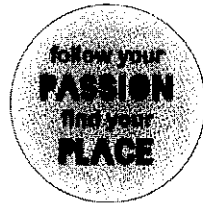
Proposal Progress:

03/14/2016 - Submitted by Department Head (S Mathis)

03/15/2016 - Submitted by Department Head (Patti Salinas)

Review Comments:

No comments have been added to this proposal.



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Justification for a Conservation Law Enforcement Certificate Program

Those students who are pursuing a career in conservation law enforcement generally either complete a criminology/criminal justice or biology/wildlife management degree. Because of the nature of the work of conservation officers, neither of these degrees fully prepares a student for this type of career. Those students with a criminal justice background have a good understanding of the criminal justice system, criminal law and policing. However, these students often do not have the background in wildlife and fisheries management that is needed to be a conservation officer. Similarly, those students with a background in fisheries or wildlife management have a good understanding of wildlife or fisheries management and wildlife and fisheries identification that is needed, but often lack the needed background in criminal justice. To address these shortcomings, a certificate program in conservation law enforcement should be created. This certificate would be a joint certificate between the Department of Criminology and Criminal Justice and the Department of Biology. Even though it is geared toward students in Criminology and Biology, this certificate would be open to any student who wished to pursue it.

The vision for this certificate is that it would entail 18-19 hours of coursework, and would include coursework in both Criminology and Criminal Justice and Biological Sciences. After consultation with officials from the Missouri Department of Conservation Protection Division, they identified needs for potential applicants to have a background in criminal procedure, conservation law enforcement, wildlife/fisheries management and wildlife/fish identification. A combination of the proposed courses will make students from Missouri State University stronger applicants for their positions as conservation agents.

Objectives

1. Students will be able to explain the different facets of the criminal justice system, and its role in society.
2. Students will be able to articulate how various Supreme Court cases apply to not only the criminal justice system, but to conservation law enforcement officers specifically.
3. Students will be able to articulate and explain legal controls on evidence collection and handling.
4. Students will be able to explain who conservation officers are and their main job responsibilities.
5. Students will be able to articulate various law enforcement strategies commonly utilized by conservation officers.
6. Students will be able to explain how resource limitations influences populations.
7. Students will be able to explain how organisms are interdependent.
8. Students will be able to explain how human activities and populations affect the living world.
9. Students will be able to explain how science influences wildlife management decisions.
10. Students will be able to explain the importance of maintaining biological diversity in developing and enforcing wildlife management plans.

Projected Costs of the Conservation Law Enforcement Certificate

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No additional costs are projected because students in the certificate program will enroll in existing courses, and we anticipate that the current courses will be able to absorb the additional enrollment without the need for new sections.

Conservation Law Enforcement

Undergraduate Certificate

This certificate is jointly offered by the Department of Criminology and Criminal Justice and the Department of Biology and is designed to provide students with the fundamental knowledge needed to pursue a career in conservation law enforcement. Students who complete this certificate will better understand the interdisciplinary nature of conservation law enforcement and the interdependent relationship between criminological and biological principles in this unique law enforcement field.

Required Courses

- 1. CRM 210 (3); CRM 365(3); CRM 400(3)*; BIO 122(4); BIO 373(3)
- 2. Choose one from following to total 18-19 hours: BIO 532(3); BIO 561(2); BIO 573(3); BIO 575(3); BIO 576(3)

Recommended Elective

BIO 121(4); or BIO 101(3) and 111(1)

*New course proposal submitted 2/9/16.

Required Courses

CRM 210 Introduction to the American Criminal Justice System

An overview of the American criminal justice system, its functions, problems and potential solutions. This course is a prerequisite for upper division criminology and criminal justice courses.

Credit hours: 3

Lecture contact hours: 3

Lab contact hours: 0

Typically offered: Fall, Spring

Projected offerings

CRM 365 Criminal Procedure

Prerequisite: CRM 210 and CRM 250 and CRM 260 and CRM 270.

This course critically examines the constitutional and other legal controls placed on the government's ability to collect evidence to be used in criminal proceedings. Special attention is given to Supreme Court decisions related to the issues of privacy, detention, arrest, searches, seizures, interrogations, confessions, wiretapping and eavesdropping, right to counsel, and protections against self-incrimination. Issues of officer liability are also addressed.

Credit hours: 3

Lecture contact hours: 3

Lab contact hours: 0

Typically offered: Fall, Spring

Projected offerings

CRM 400-Conservation Law Enforcement

Conservation law enforcement and conservation officers occupy an important, yet often overlooked segment of the criminal justice system. The role and duties of conservation officers is unique among law enforcement. While conservation officers perform similar duties to traditional law enforcement officers such as order maintenance and law enforcement, the scope of those duties differs in several respects. This course will explore those differences through examining conservation law enforcement from a local, national and international perspective. Additionally, this course will examine the unique role of conservation officers within the larger criminal justice system, and within the smaller law enforcement community.

BIO 122 General Biology II

Prerequisite: eligibility for both ENG 110 and MTH 135.

Recommended Prerequisite: BIO 121. Second half of two-semester introductory biology sequence for biology majors and minors. Introduction to the biology of organisms including evolutionary history, diversity, structure, and function of major taxa; and ecology. Cannot be taken Pass/Not Pass. A grade of "C" or better is required in this course in order to take BIO 235, BIO 320, or BIO 369.

Credit hours: 4

Lecture contact hours: 3

Lab contact hours: 3

Typically offered: Fall, Spring

Projected offerings

BIO 373 Principles of Wildlife Management

Prerequisite: BIO 122.

This course considers ecological principles, conservation, and management policies for wild animals and habitats. Public Affairs Capstone Experience course.

Credit hours: 3

Lecture contact hours: 3

Lab contact hours: 0

Typically offered: Fall

Projected offerings

Select one of these

BIO 532 Principles of Fisheries Management

Prerequisite: BIO 369 or BIO 373.

Life history, population ecology, and management of exploited freshwater and marine species. Scientific sampling and analysis of fishery populations. Characterization, history, and management principles for representative commercial and recreational fisheries. May be taught concurrently with BIO 632. Cannot receive credit for both BIO 632 and BIO 532.

Credit hours: 3

Lecture contact hours: 2

Lab contact hours: 2

Typically offered: Spring

Projected offerings

BIO 561 Environmental Issues Education and Interpretation

Prerequisite: permission of instructor.

Discussion of environmental issues, practical experiences in teaching environmental concepts, and awareness of environmental resource materials for the formal and nonformal educational setting. May be taught concurrently with BIO 661. Cannot receive credit for both BIO 561 and BIO 661 Public Affairs Capstone Experience course.

Credit hours: 2

Lecture contact hours: 1

Lab contact hours: 2

Typically offered: Upon demand
Projected offerings

BIO 573 Ornithology

Taxonomy, distribution, life histories and ecology of birds; emphasis on Missouri forms. Early morning field trips required. May be taught concurrently with BIO 673. Cannot receive credit for both BIO 673 and BIO 573. Public Affairs Capstone Experience course.

Credit hours: 3

Lecture contact hours: 2

Lab contact hours: 2

Typically offered: Spring
Projected offerings

BIO 575 Ichthyology

Prerequisite: 12 hours in biology.

Taxonomy, distribution, life histories and ecology of fish with emphasis on Missouri forms. May be taught concurrently with BIO 675. Cannot receive credit for both BIO 675 and BIO 575. Public Affairs Capstone Experience course.

Credit hours: 3

Lecture contact hours: 2

Lab contact hours: 2

Typically offered: Fall
Projected offerings

BIO 576 Herpetology

Prerequisite: 12 hours in biology.

Taxonomy, distribution, life histories and ecology of amphibians and reptiles with emphasis on Missouri forms. One weekend field trip required. Supplemental course fee. May be taught concurrently with BIO 676. Cannot receive credit for both BIO 676 and BIO 576. Public Affairs Capstone Experience course.

Credit hours: 3

Lecture contact hours: 2

Lab contact hours: 2

Typically offered: Spring
Projected offerings

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Missouri State.

Curricular Action Workflow



Missouri State > Computer Services - MIS > Curricular Action Workflow > CAW - Delete Program Proposal Form

Delete Program Proposal Form

Submitted on 03/31/2016 by Daniel Beckman (Danielbeckman@missouristate.edu).

Department:

Biology

Type of Program

Choose One:

- Major (Non-Comprehensive/Graduate Program)
- Minor
- Academic Rules
- Comprehensive Major
- Certificate
- Other
- Option
- Certification

For proper approval routing, choose all degrees in this minor:

- Bachelor of Arts
- Bachelor of Music Education
- Bach of Science in Athl Training
- Bachelor of Applied Science
- Bachelor of Music
- Bach of Science in Education
- Bachelor of Fine Arts
- Bachelor of Science
- Bachelor of Science in Nursing
- Bachelor of Social Work

Title of Program Affected:

Environmental Sciences & Policy

Current Catalog Description (cut and paste present description from online catalog):

211

Environment Sciences and Policy Program

Minor(s)

Environmental Sciences and Policy

Bachelor of Arts

Bachelor of Science

Administrator: Professor Xingping Sun, Ph.D.

The Environmental Sciences and Policy minor is administered by the College of Natural and Applied Sciences with the Dean, or his/her designate, serving as program coordinator. Courses must be approved by the faculty on the Environmental Focus Committee for inclusion in the minor. The coordinator must approve the course of study for each student who wishes to complete the minor.

The minor in Environmental Sciences and Policy consists of 18-19 hours. It is interdisciplinary and will permit students in various fields to complement their academic major with a minor emphasizing Environmental Sciences and Policy.

Natural Science: Select 3 of the following. (9-10 hours)

BIO 369(4) General Ecology

CHM 260(3) Principles of Environmental Chemistry or CHM 460(3) Environmental Chemistry I

GLG 171(3) Environmental Geology* or GRY 108(3) Principles of Sustainability**

GRY 351(3) Conservation of Natural Resources or AGN 335(3) Soil Conservation and Water Management

Policy: Select 3 of the following courses (9 hours)

ECO 540(3) Economics of the Environment

PHI 302(3) Environmental Ethics

PLS 555(3) Public Policy for a Global Environment

LAW 537(3) Environmental Regulation

PSY 379(3) Environmental Psychology

SOC 319(3) Environmental Sociology

Recommended: At least one statistic course.

*GLG 171 may count toward the General Education Focus on Physical Science requirement.

**GRY 108 may count toward the General Education Focus on Social and Behavioral Sciences requirement.

Not Attached

Total Hours: 18-19 hours

Reason for Proposed Deletion:

This minor is rarely used and students will be advised to complete the Sustainability minor instead. All students currently in the minor have been contacted. The final student to complete the minor will graduate in May 2016.

What is the date that this new program was approved by departmental or program faculty? (MM/DD/YYYY)

03/17/2016

Current Status:

Out For Challenge

Proposal Progress:

03/31/2016 - Submitted by Department Head (S Mathis)

04/12/2016 - Approved by College Council (Mark Richter)

04/12/2016 - Reviewed by Dean (Tamera Jahnke)

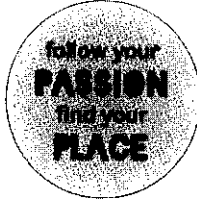
04/19/2016 - Reviewed by Faculty Senate Executive Committee (Ruth Barnes)

Review Comments:

No comments have been added to this proposal.

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[Redacted comment area]



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