WINONA STATE UNIVERSITY
NEW AND REVISED COURSE AND PROGRAM APPROVAL FORM

Routing form for new and revised courses and programs. Course or Program DSCI 488 – Data Science Project

Department Recommendation

[signature] 1/24/14 bdeppa@winona.edu

Department Chair Date e-mail address

Dean's Recommendation ✓ Yes _____ No*

[signature] 1/29/14

Dean of College Date

*The dean shall forward their recommendation to the chair of the department, the chair of A2C2, and the Vice President for Academic Affairs.

A2C2 Recommendation _____ Approved _____ Disapproved

_____ _____

Chair of A2C2 Date

Graduate Council Recommendation _____ Approved _____ Disapproved
(if applicable)

_____ _____

Chair of Graduate Council Date

_____ _____

Director of Graduate Studies Date

Faculty Senate Recommendation _____ Approved _____ Disapproved

_____ _____

President of Faculty Senate Date

Academic Vice President Recommendation _____ Approved _____ Disapproved

_____ _____

Academic Vice President Date

Decision of President _____ Approved _____ Disapproved

_____ _____

President Date

Please forward to Registrar.

Registrar _____ Please notify department chair via e-mail that curricular change has been recorded.
Date entered

[Revised 9-1-10]

WINONA STATE UNIVERSITY
PROPOSAL FOR A NEW COURSE

This form is to be used to submit a proposal for a new undergraduate or graduate course. Every item on this form must be completed prior to submission to A2C2. The department proposing a new course must include a ***Financial and Staffing Data Sheet*** and a ***New and Revised Course and Program Approval Form*** with the department chairperson's and Dean's signatures. Refer to Regulation 3-4, ***Policy for Changing the Curriculum***, for complete information on submitting proposals for curricular changes.

Department Department of Mathematics and Statistics Date January 20, 2014

DSCI 488	Data Science Project	1- 6
Course No.	Course Title	Credits*

This proposal is for a(n): ___X__ Undergraduate Course _____ Graduate Course

Is this course for USP? ____Yes** X No Is this course for GEP? ____Yes** X No

List all Major Codes to which this proposal applies as a required course: DSCI

List all Major Codes to which this proposal applies as an elective course:

List all Minor Codes to which this proposal applies as a required course:

List all Minor Codes to which this proposal applies as an elective course: DSCI

Prerequisites DSCI 395 and permission of instructor

Grading method _____ Grade only _____ P/NC only X Grade and P/NC Option

Frequency of offering Offered on demand

What semester do you anticipate that will this course be offered for the first time? Spring 2015
Note: The approval process for a new course typically takes at least four to six weeks

* If this course will change the number of credits for any major or minor, the form ***Proposal for a Revised Program*** must also be submitted and approved according to the instructions on that form.

For General Education Program (GEP) or University Studies (USP) course approval, the form ***Proposal for General Education Courses* or ***Proposal for University Studies Courses*** must also be completed and submitted according to the instructions on that form.

Please provide all of the following information:
(Note: a syllabus or other documentation may not substitute for this)

A. Course Description

1. Description of the course as it will appear in the WSU catalog, including the credit hours, any prerequisites, and the grading method. If the course can be repeated, indicate the maximum number of credit hours for which this can be done.

   DSCI 488 – Data Science Project (1 - 6 S. H.)
   Practical experience working on real problems under the supervision of a faculty member experienced in data science. Prerequisite: DSCI 395 – Professional Skill Development for Data Science and permission of instructor. Offered on demand.

2. Course outline of the major topics, themes, subtopics, etc., to be covered in the course. This outline should be, at a minimum, a two-level outline, i.e., consisting of topics and subtopics. This information will be submitted to MnSCU by the WSU Registrar's office.

1. Identification of project – to be done in consultation with a faculty member in data science
    a. Identify project objectives
    b. Identify course requirements for completion of project
2. Literature review
    a. Review past data science projects
    b. Complete appropriate literature review for project
3. Project design and procedures
    a. Identify appropriate design and procedures for the project
4. Completing work
    a. Collecting appropriate data and/or conducting simulations
    b. Conduct appropriate analysis of outcomes

3.a Instructional delivery methods utilized: (Please check all that apply).

Auditorium/Classroom :	ITV	Online	Web Enhanced	X Web Supplemented
Laboratory:	Service Learning	Travel Study	Internship/Practicum	
Other: (Please indicate)				

3.b. MnSCU Course media codes: (Please check all that apply).

None:	3. Internet	X 6. Independent Study	9. Web Enhanced
1. Satellite	4. ITV Sending	7. Taped	10. Web Supplemented X
2. CD Rom	5. Broadcast TV	8. ITV Receiving	

4. Course requirements (papers, lab work, projects, etc.) and means of evaluation.

The project goals and method of evaluation will vary depending on the project. The goals and evaluation methods will be clearly identified on the independent study paperwork, which requires the signature of the student and faculty member, before submission.

5. Course materials (textbook(s), articles, etc.).

Possible curriculum resources include:

- Review of past data science projects
- Bender, S. (2003). Producing the Capstone Project. Kendall/Hunt Publishing. ISBN: 0-7575-0451-5
- Sherfield, R., Montgomery, R., Moody, P. (2000). Capstone: Succeeding Beyond College. Prentice Hall. ISBN: 978-0-130-88613-2

6. List the student learning outcomes for this course and how each outcome will be assessed.

The following learning outcomes for this course will be assessed through the completion of their project.

- Students will be able to critique and analyze past data science projects
- Students will be able to design and implement a data science project
- Students will be able to construct, critique, and defend possible solutions for their project
- Students will be able to identify the necessary skills to complete a data science project
- Students will be able to apply the data science research cycle/process throughout their project

B. Rationale

Provide a rationale for the new course. The rationale should include the following items.

1. A statement of the major focus of the course.

The focus of this course is to allow our students to complete the capstone requirement for the data science major. This course can be used as an elective in our data science minor.

2. A statement of how this course will contribute to the departmental curriculum.

The Department of Mathematics and Statistics requires all students to complete a capstone requirement. This course will allow students in our new data science program to complete this requirement. Students may use this course as an elective for their data science minor.

3. A statement of why this course is to be offered at this level (i.e. 100-, 200-, 300-, 400-, or 500-level)

   The 400-level designation is appropriate as this course will should be taken after most other course work for the major/minor is completed.

4. Identification of any courses which may be dropped, if any, if this course is implemented.

   None.

C. Impact of This Course on Other Departments, Programs, Majors, and Minors

Provide a statement of the impact of this course on other departments, programs, majors, and minors.

1. Clearly state the impact of this course on courses taught in other departments. Does this course duplicate the content of any other course? Is there any effect on prerequisites for this or any other courses?

   This course does not impact other departments. The prerequisites courses are or will be offered on a regular basis.

2. Would approval of this course change the total number of credits required by any major or minor of any department? If so, explain the effects which this course would have.

   Yes. This course may be used to satisfy the capstone requirement of our new data science major. This course can be used as an elective for the new data science minor.

3. If this course has an impact on the major or minor of any other department or program, it is the responsibility of the department submitting the course proposal to send written notification to the department(s) or program(s) affected. State clearly which other programs are affected by this proposal and whether the other departments have been notified and/or consulted. Attach letter(s) of understanding from impacted department(s).

   To our knowledge, no existing curriculum will be adversely impacted by this creation of this course.

D. Attach to This Proposal a Completed

1. ***Financial and Staffing Data Sheet***
2. ***New and Revised Course and Program Approval Form***

E. Department Contact Person for this Proposal:

Christopher Malone	457-2989	cmalone@winona.edu
Name (please print)	Phone	e-mail address

F. Review by Department A2C2 Representative

I have reviewed this proposal and certify that it is complete Tisha Hooks

Signature of A2C2 representative

Definitions for codes in 3a and 3b:

01-Satellite:
02- CD ROM:
03- Internet: Predominately = where all, or nearly all, course activity occurs in an online environment. One to two activities may occur face-to-face in a classroom, with the maximum being two activities.
04 – ITV Sending: a course in which students are in the classroom with the instructor, other students join via interactive television technology from other geographically separate locations
05 – Broadcast TV:
06 – Independent Study: a course in which the teacher develops specialized curriculum for the student(s) based on department guidelines in the University course catalog
07 – Taped: a course in which the teacher records the lessons for playback at a later date
08 – ITV Receiving: a course in which students are not in the classroom with the teacher, other students join via interactive television technology from other geographically separate locations
09 – Web Enhanced- Limited Seat Time: For a course in which students are geographically separate from the teacher and other students for a majority of required activities. However, some on-site attendance is required. The course includes synchronous and/or asynchronous instruction.
10 – Web Supplemented- No Reduced Seat Time: For a course utilizing the web for instructional activities. Use of this code may assist your college/university in tracking courses for “smart classrooms” and/or facility usage.

WINONA STATE UNIVERSITY

FINANCIAL AND STAFFING DATA SHEET

Course or Program__DSCI 488 – Data Science Project_

Include a Financial and Staffing Data Sheet with any proposal for a new course, new program, or revised program.

Please answer the following questions completely. Provide supporting data.

1. Would this course or program be taught with existing staff or with new or additional staff? If this course would be taught by adjunct faculty, include a rationale.

   Currently, faculty do not receive credit for the teaching of DSCI 488. Thus, there will be no financial impact to the university by approving this course.

2. What impact would approval of this course/program have on current course offerings? Please discuss number of sections of current offerings, dropping of courses, etc.

   This course will not adversely impact the offering of other courses in our department. This course will be offered on demand, and we anticipate demand to be low as we develop our new data science major and minor.

3. What effect would approval of this course/program have on the department supplies? Include data to support expenditures for staffing, equipment, supplies, instructional resources, etc.

   None.

Winona State University - Department of Mathematics & Statistics
Minutes of the Department Meeting on 1/24/14

Present: Joyati Debnath, Brant Deppa (chair), Jeff Draskoci-Johnson, Eric Errthum, Tisha Hooks, April Kerby, Steve Leonhardi, Chris Malone, Mike Markegard, Barry Peratt, Sam Schmidt, Samuel Tsegai, Aaron Wangberg, Nicole Williams, Lee Windsperger

New Business: Note: All of the items below were considered after the department waived the 40-hour rule without objection.

Motions from the Statistics Subgroup

1. STAT 100 – new course proposal and GEP proposal

The new STAT 100 course proposal and GEP proposal were approved without objection.

2. New program: B.S. Data Science (DSCI) major, minor, and courses

(i) The department approved two versions of the major, both without objection. The Math department indicated a preference for Version 2, but voted to accept Version 1 if Computer Science preferred that one. Chris was directed to submit whichever one Computer Science preferred. (Their discussion was still pending as of our meeting.)
(ii) The minor was approved without objection, also with the understanding that Computer Science might want to edit certain courses in the elective list.
(iii) All new courses associated with the proposed data science major were approved without objection. These include DSCI 210, DSCI 310, DSCI 395, DSCI 488, DSCI 492, and DSCI 495.
(iv) The notifications for the conversion of STAT 325 to DSCI 325 and STAT 425 to DSCI 425 were approved without objection.

3. Program revisions: B.S. Statistics (STAT) major, minor, and courses

(i) All revisions, both to the major and to the minor were approved without objection.
(ii) STAT 395 and STAT 495, i.e. the analogous courses to DSCI 395 and DSCI 495, were approved without objections.

Supporting documentation for items 1 – 3 above were sent to the department by Tisha Hooks (STAT 100) and Chris Malone (DSCI and STAT programs) via e-mail (01/22/14).

4. Notifications re: STAT

The following notifications seek Departmental approval. 1) In Spring, 2013, the department voted to make STAT 310 the prerequisite for a number of upper-division STAT courses. Either this paperwork was not submitted, or got lost. 2) The note in the course description for STAT 305 was corrected to read STAT 305 instead of Math 305. 3) A notification to edit course description slightly and to allow ECON 222 to serve as a possible prerequisite for STAT 310. 4) Include DSCI 210 as a prerequisite for STAT 370.

The department approved the submission/resubmission of all of these notifications.

5. Notifications re: MATH courses

The following notifications were submitted for departmental approval. (i) A change in course title for MATH 112 from "Modeling with Functions" to "Applied Precalculus" (ii) A change in the catalog description of MATH 112. (See the catalog language at the end of these minutes.) (iii) A change in number for MATH 140 to MATH 132 AND a change in prerequisites from "MATH 112 - Modeling with Functions, MATH 115 - College Algebra, or MATH 120 - Precalculus" to "MATH 112 – Applied Precalculus, MATH 115 - College Algebra, or MATH 120 - Precalculus" (iv) A change in the catalog description of MATH 132. (See the catalog language at the end of these minutes.)

The department approved all of these changes without objection.

6. Proposal re: MATH 117 from Steve, Barry, and Jeff

The department approved without objection the proposal to submit MATH 117 as a new course and also the proposal to submit it as a GEP course under Goal 4. Since the Math Subgroup had not had a chance to vote on the committee's work, the department waived normal procedures without objection. (The documents were handed out in the meeting.)

Secretary's note: If there is any confusion at to what, exactly, the department agreed to in Items 1-6 above, I can supply copies of the A2C2 paperwork upon request. Summaries of the proposals re: data science and statistics are attached below.

7. Adjourn

We adjourned about 12:50 p.m.

Respectfully submitted,
Jeff Draskoci-Johnson