WINONA STATE UNIVERSITY
NEW AND REVISED COURSE AND PROGRAM APPROVAL FORM

Routing form for new and revised courses and programs.   Course or Program__DSCI 395 – Professional Skill Development for Data Science__

Department Recommendation

_____   __1/24/14__   __bdeppa@winona.edu__
Department Chair   Date   e-mail address

Dean's Recommendation __✔__ Yes   _____ No*

__Charla S Muntschm__   __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

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 <u>Department of Mathematics and Statistics</u>   Date <u>January 20, 2014</u>

<u>DSCI 395</u>   <u>Professional Skill Development for Data Science</u>   <u>   2   </u>
Course No.   Course Title   Credits*

This proposal is for a(n):   <u>   X   </u> Undergraduate Course   <u>   </u> Graduate Course

Is this course for USP? <u>   </u>Yes**   <u>X</u> No   Is this course for GEP? <u>   </u>Yes**   <u>X</u> 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   <u>Completion of GEP GOAL 1 requirements, DSCI 310, STAT 310, and CS 250 or permission of instructor</u>

Grading method   <u>   </u> Grade only   <u>   </u> P/NC only   <u>X</u> Grade and P/NC Option

Frequency of offering <u>Yearly</u>

What semester do you anticipate that will this course be offered for the first time? <u>Spring 2015</u>
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.

<u>Please provide all of the following information</u>:
(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 395 – Professional Skill Development for Data Science (2 S. H.)
    This course will develop skills necessary to become a working professional in the field of data science. Students will critique, analyze, and evaluate several data science research projects. A student's presentation, writing, and professional skills will be enhanced in this course. Prerequisites: Completion of GEP GOAL 1 requirements, DSCI 310 – Data Summary and Visualization, STAT 310 – Intermediate Statistics, and CS 234 – Algorithms and Problem Solving, or permission of instructor.   Offered yearly.

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. Capstone / Internship Requirement at Winona State University
   a. Expectations for capstone / internship experience
   b. Faculty to discuss potential project opportunities with students
   c. Encourage / assist in the coordination of REUs, internships, or other summer opportunities
2. Evaluation of past projects
   a. Critique, analyze, and evaluate completed undergraduate data science projects
   b. Accessing online articles and utilizing library resources
   c. Common sources of data for projects
3. Presentation Skills
   a. Critique department seminar and colloquia presentations
   b. Critique, analyze, and evaluate project presentations using well-established rubrics
   c. Create and deliver presentations on assigned topics
4. Writing Skills
   a. Critique, analyze, and evaluate project writing samples using well-established rubrics
   b. Organization of content / outline construction
   c. Writing an abstract
   d. Writing appropriate conclusions
5. Self-Promotion
   a. Understanding the job market
   b. Putting together application materials
   c. Promoting yourself

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	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 method of instruction for this course will be lecture and discussions. Students will be asked to critique, analyze, and evaluate several completed data science projects using appropriate rubrics. Students will gain experience in creating posters, presentations, and reports. All assessments should promote the development of professional skills.

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

Possible curriculum resources include:
1. Hering, L., Hering, H. (2010). How to Write Technical Reports. Springer-Verlag. ISBN: 978-3-540-69929-3
2. Smith-Worthington, D., Jefferson, S., (2010). Technical Writing for Success. Cengage Learning. ISBN: 978-0-538-45048-5
3. Gurak, L., Dragga, S., (2000). Presentations for Technical Communication. Alley & Bacon Publishing. ISBN:978-0-205-29415-2
4. Nicol, A., Pexman, P. (2010). Displaying Your Findings: A Practical Guide for Creating Figures, Posters, and Presentations, 6th Edition. American Psychological Association. ISBN:978-0-433-80707-7

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

Learning Outcomes	Methods of Assessment
Students will be able to critique and analyze posters, presentations, and reports	• Completion of homework assignments through the use of well-established rubrics
Students will be able to evaluate and propose improvements to past posters, presentations, and written reports	• Homework assignment(s) for rubric development • Homework assignments

Students will be able to create a poster suitable for a professional conference	• Homework assignments
Students will be able to orally present their research findings at a professional level	• Homework assignments
Students will be able to write reports at a professional level	• Homework assignments

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.

   This course will develop the professional skills necessary to succeed as a working professional in data science. Past data science projects will be used to teach students how to create professional posters, oral presentations, and written reports. This course will sufficiently prepare students for the completion of their data science capstone.

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

   This course will prepare students to complete their capstone requirement for the data science degree. In addition, students will learn the skills necessary for seeking employment.

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

   The 300-level designation is appropriate as we would like students to take this course in their junior year after the completion of several 200-level and 300-level prerequisite courses.

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 for this course 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 is part of our new data science major.

    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 395_____

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.

    This course will be taught with existing staff. The creation of this course will have minimal impact on staffing. In the beginning, one section of this course will be offered each year.

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 is a new course and initially we anticipate enrollments to be low as our new data science major develops. For this reason, this course will be offered at the same time and location as DSCI 495: Communication of Capstone Outcomes, STAT 395: Professional Skill Development for Statistics, and STAT 495: Communication of Capstone Outcomes.

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.

[Revised 9-05]

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 of all of these notifications.

5. Notifications re: MATH courses
     The department approved all of the notifications proposed by the Math Subgroup. These included changes in course titles, numbers, and catalog descriptions

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