Introduction and Course Description

CSM 15S: Evidence Based Decision Making

Course No: CSM 15S (3 units)  Time: 9:30-10:45 TTh
Semester: Fall 2014  Location: FFS 208B

Instructor  Office  Phone  eMail  Office Hours
John Constable  S-316B  278-2410  jconstable@csufresno.edu  W 10-12, F 10-11, or as arranged
Ulrike Müller  S-320B  278-2532  umuller@csufresno.edu  T 11-12, W 3-5, or as arranged
Eric Person  S-244  278-2170  eperson@csufresno.edu  TTh 11-12, F 8-11, or as arranged

Please refer to the electronic blackboard (blackboard.csufresno.edu) for announcements and additional course information.

Catalog Description: Practice in the evaluation and use of quantitative evidence in reasoned decision making. Topics include uncertainty, significance, trends, experimental design, and causality.

Advising Notes: This course is only open to students enrolled in the STEM-First Year Experience Learning Community. It must be taken with CSM 10 and the specified sections of COMM 8 and ENGL 5A.

Required Textbooks and Materials

- Quantitative Reasoning and the Environment: Mathematical Modeling in Context by Greg Langkamp and Joseph Hull
- The majority of reading for this course will come from the primary literature, industry reports, government reports, and internet resources. Part of the purpose of this course is to learn how to access these resources.

Course Goals – Primary Learning Outcomes

In this course you will develop essential critical thinking skills common to the use of the scientific method in many scientific disciplines. After completing this course you will be able to better understand where the concepts and theories presented in other science courses came from and how they are used in addressing real-world problems. Students completing this course will:

1. Locate sources of quantitative experimental data related to a question or topic.
2. Evaluate the reliability of the information source along with determining if the context and origin of the quantitative data to determine it can be used for valid comparisons (FS GE outcome E2).

3. Assess the relevance and significance of common forms of quantitative data in supporting or refuting claims and assertions appearing in the literature and media regarding current societal issues. (FS GE outcome E2).
   a. descriptive statistics
   b. inferential statistics
   c. graphs of experimental evidence and data
   d. accepted scientific theories

4. Demonstrate proficiency in using quantitative data and evidence in a reasoned manner to inform decision making on life issues related to how environment and society can affect our physiological health. (FS GE outcome E1).

5. Explore careers and organizations involved in generating or using reliable quantitative data on the relationships between environment, society, and physiological health.

GE Area E Learning Outcomes
1. Explain how, during the course of a lifetime, humans are physiologically, socially, and psychologically integrated.
2. Explain, model, or practice activities, skills, and behavior that promote lifelong learning and development.

Course Policies
This syllabus and schedule are subject to change in the event of extenuating circumstances. If you are absent from class, it is your responsibility to check on announcements made while you were absent.

Grading

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<th>Component</th>
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<td>Assignments</td>
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<td>Unit Projects (Report &amp; Presentation)</td>
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The letter grades assigned at the end of the course will be based on your cumulative points as follows:

A  90-100%
B  80-89%
C  65-79%
We may use our assessment of improvement, participation in class, regular completion of homework, and/or consistent course performance to evaluate whether borderline scores (e.g. 89%) are moved up to the next grade bracket.

**Attendance and Participation (15%, shared grade)**

This course will be using a student driven workshop format. This active learning format has been shown to provide significantly improved student learning over conventional reading and lecture formats. Your success in this class requires your attendance and meaningful participation in team work and discussions.

To earn full marks in this portion of the course you will need to attend each session, come prepared having read any required material and completed assignments and preparation questions, share your ideas and opinions with the team, listen to the ideas of other team members constructively comment and evaluate other ideas presented by the team, and take part in team work in preparing reports and presentations. Each student is expected to be involved in each part of the team work. It is not acceptable to simply split up the work and have each student do one thing without discussion and feedback from the team.

**Assignments (10%, shared grade)**

During the course of the semester you will be given somewhere between 8 and 15 assignments to complete outside of class in addition to the research papers, service learning project, and unit reports and presentations. The nature of these assignments will vary significantly, but in each case specific instructions will be posted to blackboard and discussed in class. Many assignments will involve a mixture of preparative reading, research to find and evaluate reference information, and writing summaries of class work.

This outside of class work, will allow class time to focus on application of concepts from the course reading to real-world data and problems. Your meaningful participation in the workshop format will require that you complete assignments in a timely manner.

**Unit Reports and Presentations (15%, shared and team grade)**

The CSM 10 and 15 active learning workshops are made up of 3 core learning units centered on topics of chemical spills and hazards, biological organisms and drought, and urban ecology and environment. You will work on each of these units in teams of 4-6.

The unit reports and presentations are a culminating experience where you will apply what you have learned during the unit in answering a specific research question selected by your team in consultation with the unit instructor. Your team will communicate the results of your research in both a written report (40 pts) and an oral poster presentation (40 pts). The final 20 citizenship points will be assigned by the instructor on the quality of your contribution to the group effort based on your preparation for the presentation, your ability to answer questions about the project, observations of in-class work, and feedback from your peers.
**e-Portfolio (5%)**

Throughout the semester you will work on building an e-Portfolio with examples of key terms and concepts in critical thinking. These examples will be drawn from our reading and in-class work along with your personal research from your writing requirement. Additional details about this assignment can be found on blackboard and will be discussed in class.

**Exams (35%)**

We will have two midterm and one final examination for this course. You will be allowed a total of two hours for each examination. Each midterm examinations will contain a mixture of questions specific to both CSM 10 and CSM 15S. You will receive two grades for each midterm exam, one for each course. The two final examinations will be course specific. Each exam will contain a combination of definition questions, short answer questions, and essay questions.

**Service and Writing Requirement (25%)**

As part of this course you will be required to complete an approved 15+ hour service learning project. Students who complete more than 30 documented service hours on their project may receive up to 5% extra credit. This project will work with a non-profit community organization related to one of the three unit topics of the course to provide you a better chance to understand the relevancy of science and quantitative data to our communities. As part of the service learning project you are required to write two 500 word papers. The first paper will reflect upon your community partner, their goals and approaches. The second paper will reflect upon how your service learning project or your community partner could use quantitative data to aid meeting its goals.

In the first few weeks of the course we will discuss the purpose and benefits of service learning, the specific requirements of the project, and provide the opportunities to explore possible projects with community partners. You will submit documentation of your progress on the service project through a series of progress checks through blackboard including:

1. **Service Learning Orientation** (2 participation points, due Aug. 26) – complete the blackboard module on the goals of service learning and how to build a positive and rewarding project.
2. **Project Selection** (2 participation points, due Sept. 9) – a short description of three possible projects and organizations you are considering.
3. **Project Selection** (2 participation points, due Sept. 16) – a contract detailing your selected partner, the goals and expectations for your project, and an anticipated schedule of when you will complete your service hours. It is best to distribute hours throughout the semester if possible, as your reflection paper on your service learning experience will be an important part of class discussions on how evidence is used in decision making.
4. **Progress Check 1** (2 participation points, due Oct. 16) – Your service journal and service hour logs including an adjusted contract schedule if you are more than 5 hours behind your initial schedule.
5. **Reflection Paper 1** (due Oct. 16) - Your first writing assignment will be a 500+ word paper discussing your partner organization, their goals, how these goals relate to the
course unit topic, and the types of activities they use to pursue these goals. This paper should include a clear discussion of evidence for how their efforts will or will not achieve their goals. Complete assignment requirements and scoring rubrics can be found on blackboard. You will submit a draft of your report for peer and instructor feedback. The final version of your report will be peer reviewed.

6. Progress Check 2 (due Nov. 6) – Your service journal and service hour logs including an adjusted contract schedule if you are more than 5 hours behind your initial schedule.

7. Reflection Paper 2 (due Dec. 2) – Your second writing assignment will be a 500+ word paper reflecting on how your project or your partner organization uses or could use quantitative data from the scientific literature to support its goals. Complete assignment requirements and scoring rubrics can be found on blackboard. You will submit a draft of your report for peer and instructor feedback. The final version of your report will be peer reviewed.

8. Completed Service Packet (due Dec. 4) – You should have completed your service hours by November 26 and will submit a completed log of hours served, your service journal, and the project evaluation form.

Your service project will be scored as your writing requirement grade and as part of your assignment grade. If you do not successfully complete your service project (minimum of 15 hours and 50% of possible points) you will receive an F in this course. Detailed descriptions of each component of the service learning project can be found on Blackboard.

The bulk of your grade for the service project will be two reflection papers, each worth 36 of the 100 points for the service learning project. The specific requirements for these papers can be found in the service learning folder in blackboard. For each paper you will submit a written first draft (2 participation points; this first draft will receive peer feedback (2 participation points for providing feedback to others) and instructor feedback. Then you will then use this feedback to prepare a final written report for peer review (2 participation points for providing peer review). If your final report is deemed an “honest effort”, you will receive 15 honest-effort points. If your report is deemed more than just an “honest effort”, you will receive up to 15 top-performance points. The four students who write the four best reports will give a brief talk in class about their report (or forfeit 5 of their top-performance points).

**Study Expectations**

Success in all college courses will require significant reading and study time outside of class hours. This course is no different. In general you should expect to spend 3-4 hours of outside of class work between each meeting (24-36 hours per week for the entire learning community). If you cannot allocate this time you are unlikely to be successful.

Part of this course will focus on strategies for using this time effectively. You may also find help in study skills through workshops offered by the Learning Center and Support Net.

**Support Net**

While you are primarily responsible for your own success in college, we are also committed to your success. If we are concerned that you are not making adequate progress in this or
another course in the learning community we may refer you to Support Net. This office provides support to students in identifying why they may be struggling with material and directs students to free campus resources that can help you overcome those problems.

**Makeup Exams and Late Assignments**

Late assignments and make-up exams are generally not allowed unless you make arrangements with the instructor prior to the due date. In general you will be required to provide documentation of the reason for the missed exam or late assignment. You may refer to APM 232 for examples of authorized student absences.

**University Policies**

You can read important university policies regarding disabilities, disruptive classroom behavior, computers, cheating, copyright issues, and the honor code in the university catalog or at [www.fresnostate.edu/academics/documents/RequiredSyllabusPolicyStatements_001.doc](http://www.fresnostate.edu/academics/documents/RequiredSyllabusPolicyStatements_001.doc)