FSN 524 Research Methods and Biostatistical Techniques
Syllabus

Course description: Evaluates research design and statistics used in the areas of nutritional and medical research. 3 cr. Prerequisites: Undergraduate statistics course (e.g. MAT 232) or permission.

Faculty Information

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Website: http://www.foodsciencehumannutrition.umaine.edu/faculty/mary-ellen-camire/
Office hours: I will be available for questions every week. Times and dates will be announced on the website.

About This Course

Lectures for this class have been recorded and placed on the course Blackboard homepage. Course assessments and readings for all students are available only through Blackboard. Please watch the introductory video first to see how the class is laid out in Blackboard.

Students should have access to a computer, know how to turn computer on, reboot when necessary, download programs, send email, read email, and access the web.

Highspeed internet access (DSL or cable) is required. Software requirements: Internet Explorer version 9.0 or higher; Adobe Acrobat; Microsoft Word; SYSTAT statistical software (available at http://help.its.maine.edu/technology/computers/systat).

Reaching the course homepage: Using an Internet browser such as Internet Explorer, or Mozilla Firefox, please type in the address “http://www.courses.maine.edu/” then enter your UNET (Mainestreet) ID and password on the next web page that appears. In general, your login ID and password will be the same as your UNET (your @maine.edu email address) or PeopleSoft information. After you type in your ID and password, please click the Login button. Next you will see a webpage that will contain a list of Blackboard courses for which you are registered. Click on “FSN 524-0990 Research Methods and Biostatistical Techniques (Fall 2012)” and you will be taken to a page that shows you any news for the course. From there you can enter the main class web page. I will demonstrate how to use the website in a special video on the website.

For technical assistance with logging in, please call the Distance Education Help Line @ 1-877-947-4357 (HELP), or email help@umit.maine.edu.
Importance of time management and adherence to assignment due dates
Please be sure to view lectures each week to prevent yourself from falling behind in the
course. I strongly recommend reading the textbook chapters covered in each lecture before
the lecture.

Instructional Materials

Required Textbook: Leslie G. Portnoy and Mary P. Watkins. Foundations of Clinical Research-
different so please do not purchase it. There is a free on-line auxiliary study guide for this text

A list of references and reserve materials is available on the class website.

Learning Outcomes

Course goals and objectives:
Students will develop confidence in their ability to understand and conduct clinical research.
Students will learn how to use SYSTAT software to analyze data.

Expected outcomes:
• Students will design clinical studies.
• Students will conduct statistical analyses of data using SYSTAT.
• Students will interpret and apply research findings.

Course Policies

Late assignments will not be accepted. If you experience a loss of Internet connection or
electricity while taking a quiz, please let me know as soon as possible and I will extend the
time for that assessment.

In the case of severe illness with appropriate documentation from a healthcare provider I will
assign a grade of Incomplete with work to be made up at a mutually agreed upon deadline.
Incomplete grades will not be given for inability to complete assessments due to time
commitments or computer failure.

Students with disabilities

If you have a disability for which you may be requesting an accommodation, please contact
Ann Smith, Director of Disabilities Services, 121 East Annex, 581-2319, as early as possible in
the term.
**Academic honesty**

Academic dishonesty includes cheating, plagiarism and all forms of misrepresentation in academic work, and is unacceptable at The University of Maine. Examples of academic dishonesty include:

- having your notes of the class lecture pages and/or textbook open while you are taking a quiz
- checking a website while taking a quiz
- asking someone for help answering an assessment
- copying text directly from a website or article authored by someone else without enclosing the text in quotation marks and citing the source (I do check submissions using SafeAssignment to check for plagiarism)

You may use your notes for the two exams but not for the quizzes. As stated in the University of Maine’s online undergraduate “Student Handbook,” plagiarism (the submission of another’s work without appropriate attribution) and cheating are violations of The University of Maine Student Conduct Code. An instructor who has probable cause or reason to believe a student has cheated may act upon such evidence, and should report the case to the supervising faculty member or the Department Chair for appropriate action.

**Grading and Course Expectations**

<table>
<thead>
<tr>
<th>Assessments &amp; Assignments</th>
<th>Points per assessment</th>
<th>Contribution to total grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter quizzes on Blackboard (12 total)</td>
<td>10</td>
<td>30%</td>
</tr>
<tr>
<td>SYSTAT anova analysis (1)</td>
<td>50</td>
<td>12.5%</td>
</tr>
<tr>
<td>Take-home exams (2)</td>
<td>100</td>
<td>50%</td>
</tr>
<tr>
<td>Research article evaluation (1)</td>
<td>30</td>
<td>7.5%</td>
</tr>
</tbody>
</table>

Please note that all times mentioned in this syllabus are based on Eastern Time.

Quizzes on Blackboard contain multiple-choice, matching, and short answer questions. There is a quiz associated with each lecture; quizzes must be submitted before the associated exam will be released for you to answer. All quizzes will be available from the start of the course, thus quizzes may be taken in advance of their deadline.

Please select one research article from a medical journal and provide a critique of the study described in the article. Detailed instructions for the critique are available on the class website. Please email your evaluation by **midnight on Sept. 30**.
You will be emailed a data set to enter into SYSTAT and perform analysis of variance, and if appropriate, a post-hoc test. This assignment is due by midnight on Nov. 27. You must submit this assignment before the second exam can be released to you.

The first exam covers all course material through Oct. 20. This exam will be available on the website once you have submitted all of the associated quizzes. You will receive an email notifying you of the exam’s availability. Please email me your answers to the test no later than midnight on Sunday, Oct. 28.

The second exam is comprehensive but will emphasize lectures not covered on Exam 1. The exam will be made available after the associated lectures have been viewed. Please email me your answers no later than midnight on Sunday Dec. 16.

In the event of an extended disruption of normal classroom activities, the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.

**Schedule of Assessments**

<table>
<thead>
<tr>
<th>Due Date</th>
<th>Assessment</th>
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<tbody>
<tr>
<td>9/30</td>
<td>Research article evaluation- email to Dr. Camire by midnight.</td>
</tr>
<tr>
<td>10/7</td>
<td>On-line quizzes for chapters 1-8 due</td>
</tr>
<tr>
<td>10/27</td>
<td>On-line quizzes for chapters 9-11, (not 12), 13, 14, 31, and 32 due.</td>
</tr>
<tr>
<td>10/27</td>
<td>Exam 1 – email answers to Dr. Camire by midnight. Please note - submit all associated quizzes before attempting this exam.</td>
</tr>
<tr>
<td>11/18</td>
<td>On-line quizzes for chapters 15-20 due.</td>
</tr>
<tr>
<td>11/25</td>
<td>SYSTAT homework – email answers and data file to Dr. Camire by midnight. Earlier submissions are encouraged.</td>
</tr>
<tr>
<td>12/16</td>
<td>On-line quizzes for all other chapters.</td>
</tr>
<tr>
<td>12/16</td>
<td>Exam 2 – email answers to Dr. Camire by midnight.</td>
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Deadlines are absolute and will not be extended. No credit will be given for late assignments.
Assignments

FSN 524 Research Article Critique

Due September 30 before midnight. 30 points total.

Please find a peer-reviewed journal article that has been published since 2007 that describes an original experiment with human subjects that is not a survey, meta-analysis or epidemiological research. Review papers cannot be used for this assignment. Do not copy text directly from the paper— you must explain in your own words.

Required Elements for Assignment:
1. Provide the citation for the article: authors, year, article title, journal title, volume, issue and page numbers.
2. Does the literature review provide a reasonable rationale for the experiment? Briefly explain your answer in 1-2 sentences.
3. Is the hypothesis clearly stated? If so, what is the hypothesis?
4. Was IRB permission obtained?
5. Which sampling technique was used?
6. What were the inclusion/exclusion criteria for subjects?
7. Identify the experimental design used.
8. What were the independent and dependent variables?
9. Did the findings support the researchers’ hypothesis?
10. Is there anything you would do differently if you had to repeat this experiment?

SYSTAT analysis

You will be emailed a data set on Blackboard. Please enter the data into SYSTAT and perform the required analyses. This assignment is due Sunday, Nov. 25. The second exam will include additional work to be analyzed with SYSTAT, so completing this exercise will assist you with the exam as well.
**Suggested Course Lecture Schedule (you may cover the work faster)**

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Textbook chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/2-9/8</td>
<td>Course overview: concepts and theories</td>
<td>1, 2</td>
</tr>
<tr>
<td>9/9-9/15</td>
<td>Ethical issues in clinical research</td>
<td>3, 4</td>
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<tr>
<td></td>
<td>Principles of measurement</td>
<td></td>
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<tr>
<td>9/16-9/22</td>
<td>Reliability and validity of measurements</td>
<td>5, 6</td>
</tr>
<tr>
<td>9/23-9/29</td>
<td>Asking the research question (how to incorporate independent and dependent variable, formulation of hypotheses)</td>
<td>7, 8</td>
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<tr>
<td></td>
<td>Sampling</td>
<td></td>
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<tr>
<td>9/30-10/6</td>
<td>Experimental design and its validity</td>
<td>9, 10</td>
</tr>
<tr>
<td>10/7-10/13</td>
<td>Searching the literature, research proposals</td>
<td>31, 32</td>
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<tr>
<td>10/14-10/20</td>
<td>Quasi-experimental, exploratory research, descriptive research</td>
<td>11, 13, 14</td>
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<tr>
<td>10/21-10/27</td>
<td>Surveys &amp; questionnaires; Systematic reviews &amp; meta-analyses</td>
<td>15, 16</td>
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<tr>
<td>10/28-11/3</td>
<td>Descriptive analysis; using Systat; data management</td>
<td>17, 30</td>
</tr>
<tr>
<td>11/4-11/10</td>
<td>Inference, t-tests, analysis of variance</td>
<td>18, 19, 20,</td>
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<tr>
<td>11/11-11/24</td>
<td>Multiple comparison tests, nonparametric tests, correlation</td>
<td>21, 22, 23</td>
</tr>
<tr>
<td>11/25-12/1</td>
<td>Regression, chi-square, statistical measures of reliability</td>
<td>24, 25, 26</td>
</tr>
<tr>
<td>12/2-12/8</td>
<td>Statistical measures of validity, epidemiology, multivariate analysis</td>
<td>27, 28, 29</td>
</tr>
<tr>
<td>12/9-12/15</td>
<td>Research presentation and evaluation</td>
<td>33, 34</td>
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All assignments must be submitted to Dr. Camire electronically on Blackboard before midnight on Sunday, Dec. 16.