# Phar 6782: Evidence-based Problem Analysis (EBPA): Part 2 (of 2)

## Fall 2018

### 0.8 Credit

Syllabus is subject to change. Students will be informed of any revisions.

## Meeting Times & Locations

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Duluth Room</th>
<th>Twin Cities Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro session</td>
<td>Aug 31, 2018 10:10 to 11:00 am</td>
<td>LSci 163</td>
<td>Moos 1-451</td>
</tr>
<tr>
<td>Presentation days: Nov 19 and 20</td>
<td>Nov 19, 2018 8:00am to 12:30pm (TC and D); 1-5:30 (TC sessions; D has lab conflict); Nov 20, 2018 8:00am to 12:30pm (TC and D sessions). Students will be required to attend 1 session on either November 19th or November 20th during which they will be assigned to present. Students are required to attend the entire session they are assigned to.</td>
<td>Multiple Rooms</td>
<td>Multiple Rooms</td>
</tr>
</tbody>
</table>

**Note:** Please check Moodle for current information on class meetings frequently as it is subject to change.
# Course Instructional Team

<table>
<thead>
<tr>
<th>Course Directors</th>
<th>Twin Cities</th>
<th>Duluth</th>
</tr>
</thead>
</table>
| **Jeannine Conway, PharmD, BCPS** | Associate Professor  
Experimental and Clinical Pharmacology  
5110B Weaver-Densford Hall  
308 Harvard Street SE  
Minneapolis, MN 55455  
Phone: 612-625-2999  
Email: pluha003@umn.edu | **Dr. Jon N. Rumbley**  
Assistant Professor  
Dept. of Pharmacy Practice and Pharmaceutical Sciences  
University of Minnesota-Duluth  
127 LSci  
1110 Kirby Dr.  
Duluth, MN 55812  
Phone: 218-726-6047  
email: jrumbley@d.umn.edu |

| **Lynda S. Welage, Pharm.D., FCCP** | Dean and Professor  
5-130 Weaver-Densford Hall  
308 Harvard Street SE  
Minneapolis, MN 55455  
Phone: 612-624-1900 (main office)  
Email: lwelage@umn.edu but please copy Ms. Cynthia Singleton on all emails  
singl002@umn.edu | |

<table>
<thead>
<tr>
<th>Teaching Assistants</th>
<th>Twin Cities</th>
<th>Duluth</th>
</tr>
</thead>
</table>
| **Sam Callisto**  
Email: calli055@umn.edu | Course email: phar6782@umn.edu | |
COURSE OVERVIEW

This course is part of a two-semester series.

<table>
<thead>
<tr>
<th>End Product</th>
<th>Students in EBPA will be required to conduct a research project that will answer a <strong>pharmacy-related question</strong> by using scientific evidence obtained from a <strong>systematic review of published literature</strong>. The end product of the two-semester course series is a brief paper based on a pharmacy topic of the student's' choosing. The writing of this paper occurs over two consecutive semesters (ending this fall semester).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring Semester (EBPA 1): Write a brief project <em>Proposal</em> and the <em>Methods</em> section (form an answerable question, begin to acquire, appraise and apply evidence to answer the question; in Proposal, state the research question(s) and the rationale for investigating the question; in Methods, describe in detail how the evidence to answer the question was and will be acquired).</td>
<td></td>
</tr>
<tr>
<td>Fall Semester (EBPA 2): Continue collecting evidence and write a draft of the final paper reporting the results, receive and respond to feedback from faculty advisor(s) and a peer (as assigned), revise and submit the final paper for evaluation, and present findings to an audience of peers and faculty.</td>
<td></td>
</tr>
<tr>
<td>The final paper MUST be based on a <strong>systematic review of scientific literature</strong>. The paper <strong>may</strong> include primary data but only as ADDITIONAL evidence (see Primary Research section below for details).</td>
<td></td>
</tr>
<tr>
<td>Changing a research paper topic after submission of the Proposal requires documented Course Director permission.</td>
<td></td>
</tr>
<tr>
<td>Changing a faculty advisor after submission of the Proposal requires documented Course Director permission.</td>
<td></td>
</tr>
<tr>
<td>Attendance &amp; Participation</td>
<td>Students are expected to attend one 4.5 hour presentation session fully prepared to ask questions and participate.</td>
</tr>
<tr>
<td>Passing the course</td>
<td>Students must earn 70% of the points to receive a passing grade.</td>
</tr>
<tr>
<td>Research Paper Grades</td>
<td>COP faculty will evaluate student deliverables (Draft Paper and Final Paper) using rubrics published on the course Moodle site and discussed in class.</td>
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<tr>
<td></td>
<td>The draft paper will be reviewed by 1 student peer reviewer.</td>
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<td></td>
<td>Other course assignments are graded by TAs, course director and faculty.</td>
</tr>
<tr>
<td>Primary Research</td>
<td>In addition to evidence obtained from the systematic review of literature, projects may <strong>OPTIONALLY</strong> include evidence based on primary data collection and analysis. Primary data <strong>may ONLY be used</strong> to support/strengthen (or refute) findings obtained from the systematic review of literature – primary data analysis <strong>may NOT be used</strong> as a substitute for systematic literature review.</td>
</tr>
</tbody>
</table>
Primary data (e.g. medical records, tissue samples, surveys, etc.) collection requires considerable time and effort that may take more than 1-2 semesters. Furthermore, analysis of primary data requires in-depth knowledge of biostatistics and skills in using analytical software and/or services of a biostatistician and may require approval by the Institutional Review Board. In-depth training on primary data collection, biostatistics and analytical services are outside of the scope of the EBPA sequence. Students wishing to collect and analyze primary data are strongly encouraged to consult with course directors and their faculty advisors in order to determine the feasibility of any efforts involving primary data prior to initiating their projects.

Course Goals
1. Foster problem-solving skills in students by gaining first-hand experience with scientific research
2. Illustrate how systematic literature review is relevant to the generalist practitioner
3. Enable students to construct a research question relevant to pharmacy practice and use evidence and/or data to answer the question in a reliable and reproducible fashion
4. Communicate the answer/findings to the research question in a convincing, succinct and effective manner to an audience of peers

Learning Objectives
1. Explain how practice-based problem analysis with evidence-based methods can help pharmacists improve patient care.
2. Identify a problem in clinical or scientific practice, formulate a well-constructed question that will frame/guide investigations and determine the methods to respond to or investigate the question.
3. Utilize established methods for identifying, selecting, appraising, and applying literature in response to a defined question.
4. Formulate brief and effective written communications to describe problems and solutions to peers.
5. Demonstrate an ability to effectively verbally present the problem and solutions to peers.
6. Provide effective peer-review.

Rules for Using Primary Research Data in EBPA
Students who have an established research relationship with a faculty member may choose to complete their research paper under the mentorship of that faculty member – provided the faculty agrees to mentor the student. Student and faculty mentor will sign a contract to document this commitment (see Appendix).

Notes on primary research option for FACULTY ADVISERS:
- Students MUST perform a systematic review of the existing literature on their chosen topic to determine the state-of-the-art with respect to their research question. This must be done PRIOR to analyzing primary data.

- The faculty advisor is FULLY responsible for complying with all, safety, regulatory and ethics requirements at the University of Minnesota including, but not limited to, ensuring that appropriate approvals have been obtained for any research requiring human subjects or animals and supervising the student in data acquisition and analysis.
● Students attend classes and complete assignments as described in the syllabus.

● Faculty mentors will assess and submit grades for student mentees at established course milestones.

Connections to Prior Learning

Students will apply the acquiring and appraising they learned in:
● PHAR 6700-Becoming a Pharmacist,
● PHAR 6704- Foundations of Social & Administrative Pharmacy (SAPh)
● PHAR 6706-Foundations of Pharmaceutical Care.
● PHAR 6742: Evidence-based Problem Analysis I

Depending upon the nature of the project ultimately selected by the student, the student may apply the statistics skills they developed in:

● PHAR 6704- Foundations of Social & Administrative Pharmacy (SAPh), and/or the drug or patient care-related knowledge they obtained in their pharmacy courses prior to this course.

Finally, students will apply writing skills - including punctuation and grammar - that they learned in their pre-pharmacy and earlier pharmacy courses, and apply the skills they learned in these earlier courses to organize a scholarly or scientific paper.

General Course Expectations

Students in EBPA will be expected to:

1. Continuously self-assess any gaps or weaknesses in his/her knowledge and skills related to the course and fill these gaps (a.k.a. “catch up”) independently or by pro-actively seeking help and resources available at the University of Minnesota (e.g., the UMN Writing Center). This expectation is particularly important for students that do not have a strong academic writing background.

2. Obtain course-related information (e.g. expectations for assignments, etc.) directly from Course Directors or Course TAs. Students are strongly discouraged from relying on information obtained from College of Pharmacy students in senior PD years, as the course requirements and expectations change from year to year. Information obtained from students in other PD years may be obsolete or inaccurate.

3. Develop/Demonstrate the ability to work independently with minimal supervision and to identify and take advantage of the resources provided by the University of Minnesota (e.g. Writing Center (http://writing.umn.edu/) services, UMN Library services, individual faculty consultations, etc.).

4. Be pro-active in engaging with faculty advisors. The advisors are expected to work with students and help them to the best of their ability; however, it is the student’s responsibility to maintain contact with their advisors, schedule meetings and keep track of deadlines.
## COURSE SCHEDULE

See Moodle for weekly details*

<table>
<thead>
<tr>
<th>Class</th>
<th>Agenda/Topics</th>
<th>Activities / Assignments / Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 31, 2018 10:10-11:00</td>
<td>Intro to class</td>
<td></td>
</tr>
<tr>
<td>September 24, 2018 8 am</td>
<td>Draft paper due</td>
<td>Submit to Moodle assignment <strong>AND</strong> email to your advisor; feedback from advisors due by Oct 11, 2018</td>
</tr>
<tr>
<td>October 11, 2018</td>
<td>Peer evaluations due</td>
<td>Provide peer feedback on 1 randomly assigned paper. Students must upload their evaluation to Moodle and e-mail a copy to their peer reviewed. Each student also is responsible for uploading their feedback on the Moodle site.</td>
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<tr>
<td></td>
<td>Faculty feedback due</td>
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<tr>
<td>November 5, 2018 8 am</td>
<td>FINAL PAPER due</td>
<td>Submit to Moodle assignment <strong>AND</strong> email to your advisor; final feedback from advisors due by Nov 28, 2018</td>
</tr>
<tr>
<td>November 5, 2018</td>
<td>OPTIONAL-draft slides due</td>
<td>Email your slides to your advisor to get feedback prior to deadline for slide submission</td>
</tr>
<tr>
<td>November 13, 2018 8 am</td>
<td>Slides for presentation due</td>
<td>Staff and TA’s need time to organize for presentation rooms</td>
</tr>
<tr>
<td>November 19 and 20, 2018</td>
<td>Presentation Sessions</td>
<td>Students <strong>present research paper</strong> (12 min total; 10 min Talk + 2 min Q/A) to classmates, faculty, and clinical and industry attendees during the Conference Days (Nov 19 am and pm, Nov 20 am sessions will be schedule opposite of lab registration and electives will be provided alternate delivery options for those days). All students must attend 1 half-day session.</td>
</tr>
</tbody>
</table>
The following graded assessments will count toward your final grade for this course in the following amounts:

<table>
<thead>
<tr>
<th>#</th>
<th>Title Brief description</th>
<th>Points</th>
<th>% of final grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Course introduction quiz</td>
<td>5</td>
<td>5%</td>
</tr>
<tr>
<td>2</td>
<td>Draft paper</td>
<td>20</td>
<td>20%</td>
</tr>
<tr>
<td>3</td>
<td>Peer evaluation</td>
<td>15</td>
<td>15%</td>
</tr>
<tr>
<td>4</td>
<td>Final Paper</td>
<td>35</td>
<td>35%</td>
</tr>
<tr>
<td>5</td>
<td>Slide submission</td>
<td>5</td>
<td>5%</td>
</tr>
<tr>
<td>6</td>
<td>Presentation</td>
<td>20</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Graded Assessments**

Paper: Students draft, revise and submit a brief written paper describing the problem, question, methods used to address the question, and results and conclusions of their inquiry/investigation. Papers will be reviewed for clarity, scholarly rigor and utility of the document to those with the question (e.g. pharmacy and therapeutics committee, scientists). If your faculty advisor refers you to the writing center, you are required to reach out to them [http://writing.umn.edu/](http://writing.umn.edu/). They serve students from either campus. If your faculty requests a cover page explaining how you responded to their feedback, you are expected to provide it. If revisions are requested, they need to be addressed.

Presentation: Students draft, revise and present a short session on their work at Conference session, responding to questions. Presentations will be evaluated by faculty and peers on variables including clarify of question and methods, relevance and validity of findings and ability to respond to questions.

Peer Review: Students will provide review on one paper. Grade is based on the completeness of the review.

**Statement on Penalties for Late Work/University Make-up Assignment Policy**

As a rule, we will not accept late assignments for full credit! However, late assignments may be excused under the following conditions: illness (verified by note from a physician); a family emergency (verified by note from a professional in attendance); a University sponsored event (verified by a University official or a note from the leader of the sponsoring organization); and military duties (verified by a note from a commander).

In this course, unexcused assignments will be penalized 10% (ten percent) for each 24 hours past the published deadline, starting from the time of the published deadline up to 72 hours. Assignments posted after 72 hours of the published deadline will receive zero points for the assignment, but must still be...
completed as a requirement of the course.

⚠️ Assignments posted after 72 hours of the published deadline will receive zero points for the assignment, but MUST still be completed as a requirement of the course. Failure to complete the assignment will result in a “fail” grade for the course.

ADDITIONAL INFORMATION

Feedback from course directors and faculty are not meant to make you feel inadequate; they are meant to help you learn by identifying areas for you to concentrate on moving forward. Whenever possible, take this information in the spirit that it is offered: Constructive feedback that will provide milestone progress checks in your learning.

Other ways you can monitor your learning:
- Revisit the course objectives, and reflect honestly about what you are learning and where you might need help. Take steps to get that help.
- Talk with your peers and compare your learning with theirs. Use your area of strength to help others; and ask others to help you. Much learning happens via conversation-- either formal or informal.
- Check in with your course instructional team (instructors, teaching assistants, course coordinators) about areas of concern.

Grading

S/N (pass/fail) For EBPA 2, students will receive a passing grade (S) if they earn at least 70 out of 100 possible points listed in the Assignments and Grading section of this syllabus. Earning less than 70 points will result in a failing grade for EBPA 2.

⚠️ Note: Students must complete all course assignments in order to pass the course. No partial grades are possible and will not be issued for incomplete assignments.

⚠️ Note: Points earned in EBPA 1 do NOT transfer and are independent of the grade earned in EBPA 2. Thus, it may be possible (but not likely or advisable!) to earn a failing grade in EBPA 1 and a passing grade in EBPA 2.

Statement on Extra Credit

Extra credit is not available in this course.

Incomplete (I) Grade

A grade of “Incomplete (I)” will be awarded only in those instances where students make arrangements with the Course Director(s) to receive such a grade prior to the deadline for posting the Final Paper. Students who request a grade of Incomplete must develop a written plan for completion and presentation of the paper which outlines the reason for the request and includes a clear and specific timeline for completion and presentation of the paper. This written request/completion plan must be submitted to the Course Directors for their written approval. Students failing to follow these steps will receive an F grade for the course, will not be allowed to start APPE rotations, and will need to repeat the Applications course. The Course Directors may consider exemptions to these requirements only in the event of a medical emergency that temporarily requires the student to suspend participation in all of their courses, the emergency being documented in writing by the student’s medical provider.
Course deficiencies resulting in a grade of Incomplete must be resolved by the end of the following semester, else a grade of F will replace the I and the student will need to repeat the Applications course. Students receiving an “I-to-F” grade in Applications will be prevented from participating in further Advanced Pharmacy Practice Experiences (APPEs) until the student successfully passes EBPA 2.

Attendance Policy

Students are expected to attend every class for which they are registered. Students are expected to attend classes on the campus where they are enrolled. Full attendance is expected for the face-to-face class sessions. However, reasonable issues such as illness, natural disasters, or acts of Nature are sufficient to warrant an absence. Students who miss a class period (whether an excused absence or not) will be required to demonstrate to the course directors that the student meets the learning objectives for the missed class session. Students are responsible for arranging such demonstrations of competency with the course director on their respective campus.

Honor Code

Academic misconduct is any unauthorized act which may give a student an unfair advantage over other students, including but not limited to: falsification, plagiarism, misuse of test materials, receiving unauthorized assistance and giving unauthorized assistance. Instructors or a fellow student may report academic misconduct during an exam to the Course Directors and the Honor Council for investigation.

University of Minnesota and College of Pharmacy Policy Reference (Central Syllabus) This page includes all required UMN and CoP policies, e.g., Academic Freedom; Copyright; Course Evaluations; Disability Accommodations; FERPA, etc.

Technology Requirements and Help

The University of Minnesota computer requirements are listed here:

- [http://www1.umn.edu/Moodle/start/technical.html](http://www1.umn.edu/Moodle/start/technical.html)
- Students are required to bring laptop computers or electronic tablets to class each day to conduct Internet searches of course-related topics as required during class.
- Each day, students are required to bring a device to class that is capable of interacting with the classroom’s audience response system.
- **Technology Help, Duluth**: 218-726-8847 itshelp@d.umn.edu
- **Technology Help, Twin Cities**: 612-301-4357 help@umn.edu

Course Materials

- Required course readings are provided on Moodle.
- Additional optional resources will be listed and linked where possible
# Final Paper Required Content and Format

<table>
<thead>
<tr>
<th>Section</th>
<th>Details</th>
</tr>
</thead>
</table>
| Format Specifications    | • 2500 words for the body of the paper (Introduction, Methods, Results, Discussion/Conclusion) Figures and tables do not count towards 2500 word count. The word limit may be adjusted as needed if additional primary data will be used.  
• Use either 12 point **Times New Roman** or 11 point **Arial fonts (not both)**, double spaced, 1” margins  
• National Library of Medicine MEDLINE format for references and in-text citations. Quick guide for most frequently cited types of literature: [https://www.nlm.nih.gov/bsd/uniform_requirements.html](https://www.nlm.nih.gov/bsd/uniform_requirements.html)  
• Superscripts and subscripts used appropriately and pages numbered consecutively  
• Abbreviations appropriately defined  
• No spelling or punctuation errors  
• Do **not** adorn the paper (including the title page with graphics other than Figures and Tables pertinent to the content of the paper)  
• **TIP:** Refer to Citing Medicine, 2nd Edition as a more in-depth guide for citing literature [http://www.nlm.nih.gov/citingmedicine](http://www.nlm.nih.gov/citingmedicine)  
• **TIP:** Use the American Medical Association Manual of Style for suggestions on acceptable writing practices including grammar, punctuation, formatting, etc. - [http://www.amamanualofstyle.com/](http://www.amamanualofstyle.com/) |
| Title Page               | Title, author, course number, date of submission, advisor name if applicable, and copyright permission, if applicable.                                                                                           |
| Table of Contents & Table of Figures & Tables | • **Do not** include a table of contents.  
• **Do not** include a list of figures and tables. Insert figures and tables into the text of the paper, preferably close to where the first reference to the table or figure is made in the text. |
| Abstract                 | • 250 words maximum  
• Unstructured (No headings such as “Objective”, “Methods”, ”Results”, etc.)  
• Includes a brief statement of the rationale/objective(s) of the paper, the methods used, and a summary of results and conclusions in free narrative form.  
• There should be no references in the abstract. |
| Keywords                 | List up to 5 keywords or phrases that one may use to find your paper if it were to be published online. Use semicolon to separate keywords/phrases.                                                             |
| Introduction             | • Includes most relevant and brief background information with appropriate citations to prior work.  
• Statement of the problem or gap in knowledge being investigated, including its significance to pharmacy |
| **Methods** | *Clear statement of the Research Question, preferably in PICO format; however, other formats may be more appropriate for specific questions that don’t lend themselves to PICO format.*  
| Statement of the purpose/objective of the study  
| Any terms that the author expects to be unfamiliar to their audience should be defined in the Introduction.  
| **TIP:** Some authors like to write the Introduction last. This way they know what information they need to include in the Introduction for the readers to understand the rest of the paper more easily  
| **TIP:** As you work on your Proposal for EBPA 1, think in terms of converting the Proposal to the Introduction in EBPA 2. Many of the criteria for the Proposal and Introduction are the same. |
| **Methods** | *Brief description and justification of the literature sources  
| List of search terms and their Boolean (e.g., AND, OR) combinations  
| Description and justification for selection criteria used to arrive at the final set of articles for review  
| Description of how information was extracted from articles  
| Description of the data elements extracted from the articles that will be used in the final paper as column headings in the Table summarizing the project results.  
| Description of criteria used to evaluate the quality of evidence in each article (e.g. CEBM criteria)  
| **Primary data (if used)** - detailed methods used to collect and analyze data, IRB approval, participants, sample size, etc. These elements vary greatly by individual study and should be determined in consultation with the faculty advisor. |
| **Results** | *Proper presentation of the findings/data in a clear, logical and organized manner  
| "Study Selection Flow Diagram" (Figure 1) to show the process and result of the selected articles  
| Results table (Table 1) listing all reviewed articles with their key data elements and major findings selected for abstraction (as described in the Methods)  
| Assessment of the quality of evidence presented in the reviewed articles the criteria stated in the Methods. |
| **Guidelines for including Figures/Tables:** | *Only one figure/table per page  
| Tables and figures are sufficiently large to see key elements  
| All values have appropriate units,  
| Figures/tables are computer-generated if possible (i.e. not hand-drawn),  
| Legend for each figure or table appears on the same page as the figure or table and is informative of the content of the figure/table. |
| **Discussion** | *Concise summary of data/results,  
| The focus should be on synthesis of significant findings as they relate to answering the study questions and objectives stated in the Introduction  
| Thoughtful discussion of the strengths and limitations of the research/studies reviewed should be present |
- A conclusion that is research-based and data-driven (i.e. the conclusion should not over- or under-reach the evidence presented in the Results section) should be present
- Discuss implications for pharmacy practice (if any) and generalizability of the findings across healthcare.
- Discuss what opportunities for further research this project has uncovered

| Acknowledgments | Optional  
|                 | Here you can acknowledge anyone that has made a contribution to your efforts – consultants, faculty, preceptors, College staff, etc.  
|                 | Any funding sources should be listed here too (this will not be applicable for most projects in EBPA).  

| References      | At least 5 references to articles being reviewed (those included in the results table (Table 1))  
|                 | At least 10 references total (including the 5 articles in Table 1)  