PHM 6806 PHARMACOECONOMIC MODELING
3 SEMESTER CREDIT HOURS

INSTRUCTOR:
Karam Diaby, MS, Ph.D., Assistant Professor
Office Hours: Set up an appointment (All times Eastern).
Email: v.diaby@ufl.edu

TEACHING ASSISTANT:
Dipti Tankala, PharmD, MPharm
Email: dtankala@ufl.edu

TIME OF CLASS SESSIONS:
Sundays 06:30 p.m. – 9:00 p.m. (Eastern Standard Time) unless noted otherwise in the syllabus or Canvas posting. Assigned reading materials are available. Students are expected to read the materials prior to attending the live class session.

PREREQUISITE:
PHA 6283 Commercial Applications of Pharmacoeconomic Principles (3 cr.)

COURSE PURPOSE:
This course will provide students with an understanding of the principles and empirical methods to conduct cost-effectiveness analyses using decision-analytic modeling tools. The “hands-on” nature of this course will allow students to develop and implement a model-based cost effectiveness analysis on a healthcare topic of their choice.

COURSE FORMAT:
Live (online) class sessions and multiple self-directed learning activities are required (e.g., videos, readings, web-based learning, etc.).

LEARNING OUTCOMES:
After completing this course, the student should be able to:
1. Conceptualize health economics and outcomes research;
2. Describe the steps involved in designing a decision analytical model;
3. Build a decision-analytic model to conduct cost-effectiveness analysis using TreeAge Pro® software;
4. Extract effectiveness data from the clinical/epidemiological literature to populate decision analytic models;
5. Extract cost data from the literature to populate decision-analytic models;
6. Conduct base-case and sensitivity analyses for cost-effectiveness;
7. Interpret and disseminate the results of a model-based cost-effectiveness analysis.

SOFTWARE:
We will be using TreeAge Pro. Students in the program may purchase TreeAge Pro Student Course license (@ US$55 – See link: https://www.treeage.com/shop/). A link to instructions on how to install TreeAge Pro is posted on the course home tab on canvas.

TEXTBOOK/READINGS:

There is no assigned textbook for this course. We will instead focus on selected materials, e.g. reports, journal articles, handouts, that are listed in the course schedule (later page). Students are expected to review the materials prior to attending the live class session.

GRADING POLICY AND EVALUATION PROCEDURE:

Developing expertise in decision analytic modeling for economic evaluations requires that you “get your hands dirty” by “doing it yourself”. During the term, individual assignments will be based on lecture materials, readings from journal articles and other assigned course materials. Assignments will include problem solving exercises using TreeAge Pro software. Overall, students’ performance will be based on class participation/engagement, three assignments, and a final project.

The course requirements and their weights in the final grade are as follows:
- Student engagement: 10%
- Assignments (X4): 40% (10% each)
- Final research project: 50%

Student engagement:
This is defined as the combination of course preparation and participation. Engagement will be assessed by the active participation of students during class, in the discussion of their homework and questions they may have about the course material. A final grade will be assigned to students at the end of the course for their engagement (see grading rubric on canvas).

Assignments:
4 assignments will be given on key applications to support understanding of the concepts introduced to students. Students are expected to complete assignments individually as homework and be prepared to discuss and defend their work in class the following week. Please submit assignments on time to avoid grade deductions.

Discussion Board:
A discussion board is available for your use in the weekly folder on Canvas. Please use this to clarify your understanding of the material by posting questions or comments about the material for your classmates. Class members are encouraged to respond to questions and/or expand the discussion. The instructor will comment to clarify misunderstandings. If you identify an article that is pertinent to the class, feel free to post it. If you do post an article or a link to an article give your classmates the courtesy of a brief description of the article and how/why it relates to the topic of the week.

**Final Research Project:**

Students in this course are required to complete a project in the area of decision analytic modeling for economic evaluations. Students are encouraged to think about a topic they are interested in prior to attending the first live meeting on Sunday, June 28. A document showing examples of topics is posted on canvas. The topics will be submitted to the instructor by Wednesday, July 1. The final project has two components: a written report and a presentation of your project.

A final written report will be due by Friday, August 7. Your written report should be prepared in the journal article style with detailed results. The report should be single-spaced, a maximum of 3500 words, and use Times New Roman 12-point font. The paper should be well-organized and include a title page, abstract, background, methods, results, discussion and references. The manuscript should be written in a professional tone. A written report template and an example paper are posted on Canvas.

On week 6 of the schedule, all students will deliver a 10-minute presentation (slide deck - A maximum of 15 slides) on their course project, followed by a 5-minute Q&A session. **Students need to be prepared to defend their project as if they were interviewing for a position in a health economics and outcomes research department of a pharmaceutical company.** Templates for the report and slide deck are posted on canvas. The final research project milestones and corresponding grade weights are presented below:

<table>
<thead>
<tr>
<th>Content</th>
<th>Deadline</th>
<th>Percentage of final research project grade</th>
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<tbody>
<tr>
<td>Topic submission</td>
<td>Week 2 - July 1</td>
<td>0</td>
</tr>
<tr>
<td><strong>Milestone 1</strong> Literature Review</td>
<td>Week 3 - July 12</td>
<td>20</td>
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<tr>
<td><strong>Milestone 2</strong> Proposed Methodology and Analysis Plan</td>
<td>Week 4 - July 19</td>
<td>25</td>
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<td><strong>Milestone 3</strong> Final Project Report</td>
<td>Week 6 – July 31</td>
<td>40</td>
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<tr>
<td><strong>Milestone 4</strong> Class presentation</td>
<td>Week 6 – August 2</td>
<td>15</td>
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GRADE SCALE:

<table>
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<tr>
<th>95-100</th>
<th>80-82</th>
<th>66-69</th>
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<tbody>
<tr>
<td>A</td>
<td>B-</td>
<td>D+</td>
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<tr>
<td>90-94</td>
<td>76-79</td>
<td>63-68</td>
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<tr>
<td>A-</td>
<td>C+</td>
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<tr>
<td>86-89</td>
<td>73-75</td>
<td>60-62</td>
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<tr>
<td>B+</td>
<td>C</td>
<td>D-</td>
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<tr>
<td>83-85</td>
<td>70-72</td>
<td>&lt;60</td>
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<tr>
<td>B</td>
<td>C-</td>
<td>E</td>
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Current UF grading policies for assigning grade points may be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx.

CLASS ATTENDANCE POLICY:
Attendance to live sessions is required.

MAKE-UP QUIZ/EXAM POLICY:
Make-up exams for the exams will be given only if you have written official documentation of a valid excuse.

ASSIGNMENT DEADLINES
For late submissions, 10% will be deducted from the grade each day past the due date.

GENERAL COLLEGE OF PHARMACY COURSE POLICIES

The College of Pharmacy has a website that lists course policies that are common to all courses. This website covers the following:
1. University Grading Policies
2. Academic Integrity Policy
3. How to request learning accommodations
4. Faculty and course evaluations
5. Student expectations in class
6. Discussion board policy
7. Email communications
8. Religious holidays
9. Counseling & student health
10. How to access services for student success

Please see the following URL for this information:
Complaints

Should you have any complaints with your experience in this course please visit: http://www.distancelearning.ufl.edu/student-complaints

Faculty Evaluations

You will receive an email from the Curricular Affairs Office requesting that you complete the faculty evaluations. Please complete your faculty evaluations by the specified date and time by logging in with your GatorLink account at the following site: https://evaluations.ufl.edu. Faculty evaluations are important feedback for your course instructors. Your input via evaluations can make a difference in our teaching activities, so participate, evaluate and our Master’s program will be better for it. The online faculty evaluation system is completely anonymous. When you submit an evaluation, the system marks that you have submitted an evaluation for the course and section (so you cannot submit multiple evaluations), but from that point on, there is no connection between you and the evaluation data.
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Notes (Readings, Assignments, Due Dates)</th>
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<tbody>
<tr>
<td></td>
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<td><strong>Watch videos Required</strong>&lt;br&gt;1. Pre-recorded video (Instructor/TA): Overview of Pharmacoeconomic concepts&lt;br&gt;2. Getting started with TreeAge Pro 1: <a href="https://www.youtube.com/watch?v=TZUdDKA5hXs">https://www.youtube.com/watch?v=TZUdDKA5hXs</a>&lt;br&gt;3. Getting started with TreeAge Pro 2: <a href="https://www.youtube.com/watch?v=Pi6rbl15Q">https://www.youtube.com/watch?v=Pi6rbl15Q</a></td>
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<td><strong>Optional</strong>&lt;br&gt;1. Refresher on economic evaluations: <a href="https://www.youtube.com/watch?v=aiQj2KFlkI&amp;list=PLo8Eb_VviY7mzjOGTjSyq0Qm96xm9qCac&amp;index=8">https://www.youtube.com/watch?v=aiQj2KFlkI&amp;list=PLo8Eb_VviY7mzjOGTjSyq0Qm96xm9qCac&amp;index=8</a></td>
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<tr>
<td>Week 2</td>
<td>07/05/2020</td>
<td>Model input parameters - Transition probabilities</td>
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<td>Week 3</td>
<td>07/12/2020</td>
<td>Model input parameters - Health utilities</td>
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<tr>
<th>Week 3</th>
<th>07/12/2020</th>
<th>Model input parameters - Resource use and Costs</th>
<th>Required readings</th>
</tr>
</thead>
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**Watch videos**

- Required
  1. Pre-recorded lecture (Instructor/TA): Data sources for input parameters 1
  2. TreeAge Pro Markov modeling 1: [https://www.youtube.com/watch?v=wlj77Mr_ID4](https://www.youtube.com/watch?v=wlj77Mr_ID4)
  3. TreeAge Pro Markov modeling 2: [https://www.youtube.com/watch?v=PWbh7DmA0IY](https://www.youtube.com/watch?v=PWbh7DmA0IY) Optional

Excel decision modeling 1: [https://www.youtube.com/watch?v=YB3jB0g3sIg&list=PLG7HJSuTXv5SOiUFsg4askin23mVOFqmG&index=1](https://www.youtube.com/watch?v=YB3jB0g3sIg&list=PLG7HJSuTXv5SOiUFsg4askin23mVOFqmG&index=1)

**Course project topic selection due on Wednesday (07/01/2020) Assignment**
1 due at 11:55 pm on Sunday (07/05/2020)

**Watch videos**

- Required
  1. Pre-recorded lecture (Instructor/TA): Data sources for input parameters 2
  2. Review videos from Weeks 1-2
  3. Excel decision modeling 2: [https://www.youtube.com/watch?v=zbEjEA6djRU&list=PLG7HJSuTXv5SOiUFsg4askin23mVOFqmG&index=3](https://www.youtube.com/watch?v=zbEjEA6djRU&list=PLG7HJSuTXv5SOiUFsg4askin23mVOFqmG&index=3)
<table>
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<tr>
<th>Week 4</th>
<th>07/19/2020</th>
<th>Model implementation and base-case analysis</th>
</tr>
</thead>
</table>

Project Milestone 1: Literature Review due at 11:55 pm on Sunday (07/12/2020) Assignment 2 due at 11:55 pm on Sunday (07/12/2020)

**Required readings**

**Optional readings**

**Watch videos**

**Required**

1. TreeAge Pro Markov modeling 3:  
   [https://www.youtube.com/watch?v=VPeL_A5S_MY&list=PLG7HJSuTXv5ScPt8Xj2m5pG68AREU-8c&index=3](https://www.youtube.com/watch?v=VPeL_A5S_MY&list=PLG7HJSuTXv5ScPt8Xj2m5pG68AREU-8c&index=3)

2. TreeAge Pro Markov modeling 4:  
   [https://www.youtube.com/watch?v=Q227BQOt87E&list=PLG7HJSuTXv5ScPt8Xj2m5pG68AREU-8c&index=4](https://www.youtube.com/watch?v=Q227BQOt87E&list=PLG7HJSuTXv5ScPt8Xj2m5pG68AREU-8c&index=4)

3. TreeAge Pro Markov modeling 5:  
   [https://www.youtube.com/watch?v=6WbDSffuWeo&list=PLG7HJSuTXv5ScPt8Xj2m5pG68AREU-8c&index=5](https://www.youtube.com/watch?v=6WbDSffuWeo&list=PLG7HJSuTXv5ScPt8Xj2m5pG68AREU-8c&index=5)

4. TreeAge Pro Markov modeling 6:  
   [https://www.youtube.com/watch?v=hjxIQRlGwCs&list=PLG7HJSuTXv5ScPt8Xj2m5pG68AREU-8c&index=6](https://www.youtube.com/watch?v=hjxIQRlGwCs&list=PLG7HJSuTXv5ScPt8Xj2m5pG68AREU-8c&index=6)

**Optional**

1. Excel decision modeling 2:  
   [https://www.youtube.com/watch?v=zbEjEA6djRU&list=PLG7HJSuTXv5SOiUFsg4askin23mVOFqmG&index=3](https://www.youtube.com/watch?v=zbEjEA6djRU&list=PLG7HJSuTXv5SOiUFsg4askin23mVOFqmG&index=3)

2. Excel decision modeling 3:  
   [https://www.youtube.com/watch?v=WxOGUMM7mC8&list=PLG7HJSuTXv5SOiUFsg4askin23mVOFqmG&index=4](https://www.youtube.com/watch?v=WxOGUMM7mC8&list=PLG7HJSuTXv5SOiUFsg4askin23mVOFqmG&index=4)

**Project Milestone 2: Proposed Methodology and Analysis Plan due at 11:55 pm on Sunday (07/19/2020) Assignment 3 due at 11:55 pm on Sunday (07/19/2020)**
| Week 5 07/26/2020 | Deterministic and probabilistic sensitivity analyses | **Required readings**  

**Optional readings**  

**Watch videos**  
1. Pre-recorded lecture (Instructor/TA): Sensitivity analyses  
2. TreeAge Pro Markov modeling 6:  
   https://www.youtube.com/watch?v=hjxIQRIGwCs&list=PLG7HJSuTXv5ScPt8Xi2m5pG68AREU-8c&index=6  
3. TreeAge Pro Markov modeling 7:  
   https://www.youtube.com/watch?v=GNnh62pJG2c&list=PLG7HJSuTXv5ScPt8Xi2m5pG68AREU-8c&index=7  

**Optional**  
1. Excel decision modeling 4:  
   https://www.youtube.com/watch?v=WxOGUMM7mC8&list=PLG7HJSuTXv5SOiUFsg4askin23mVOFqmG&index=4  
2. Excel decision modeling 5:  
   https://www.youtube.com/watch?v=Asi6OBdw3rU&list=PLG7HJSuTXv5SOiUFsg4askin23mVOFqmG&index=5  

**Assignment 4 due at 11:55 pm on Sunday (07/26/2020)**|
| Week 6 08/02/2020 | Final project | **Project Milestone 3: Final Project Report due at 11:55 pm on Friday (07/31/2020)** |
Project Milestone 4: Class Presentation at 6:30 pm on Sunday (08/02/2020)

*** DISCLAIMER: Please be aware that this syllabus may be subject to changes. Students will be notified of any changes.