OPER 3203–001 Decision Modeling and Analysis
Course Syllabus – Fall 2020

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Office Hours: Tuesdays 12:00 noon – 1:00 pm only on WebEx

Office: Friday Building – Room # 353A

Additional time available by appointment

Required Course Materials:

Hardware and Software requirements: Windows OS, Microsoft Excel 2016/2013/2010 and Analytic Solver Platform for Education (ASPE)

- Students are required to purchase a 140-day license copy of ASPE from Frontline systems for $25. Instructions for this are posted on Canvas course site.
- ASPE is available via PCs in lab 280 and in the open lab 216 on the second floor of Friday building.

Other course materials including copies of presentations and video lecture notes will be provided on the Course Canvas website at: https://canvas.uncc.edu

Syllabus: This syllabus contains the policies and expectations the instructor has established for this course. Please read the entire syllabus carefully before continuing in this course. These policies and expectations are intended to create a productive learning atmosphere for all students. Unless you are prepared to abide by these policies and expectations, you risk losing the opportunity to participate further in the course.

The standards and requirements set forth in this syllabus may be modified at any time by the instructor. Notice of such changes will be by announcement in the class and/or by changes to this syllabus posted on the Course Canvas website.

Catalog Description: Analytical approach to understanding the management process and solving management problems with emphasis on model formulation, solution techniques, and interpretation of results. Topics include technique such as linear, integer, network, goal, and multi-
objective programming; queueing theory and applications; decision support via Monte Carlo simulation; decision making under uncertainty; decision trees, and multi-criteria decision making. Microsoft Excel along with ASPE are the main analytical tools.

**Prerequisite:** OPER 3100 with a grade of C or above.

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**Course Learning Objectives:**

To provide students, primarily in the fields of business and economics, with a sound conceptual understanding of the role management science plays in the decision making process. Emphasis is placed on quantitative approaches to decision making as well as how they can be applied and interpreted. Specific topics covered in this course include fundamental techniques such as linear programming, integer programming, queueing theory, and simulation. In summary, the ability to develop models to support decision making is one of the critical areas of competency that should be demonstrated by students who have successfully mastered the OSCM major. These skills will be measured by the following outcomes:

1. Students develop decision models to determine the best allocation of limited resources.
2. Students develop Monte Carlo based simulation models to support decision making under uncertainty.

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**Canvas Course Website:**

You are required to access regularly the Canvas Course website and, in particular, before each class. In addition to containing helpful information and course materials, Canvas will be used to communicate information on assignments, changes to syllabus, and other announcements of general interest.

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**Hybrid Course:**

Please be aware that this is a hybrid course, which means that it will be delivered through a combination of in-class lectures and on-line content. Topics will be introduced to students on-line in the form of presentations and lecture video recordings, while class time will be reserved for review of topic materials, in-class quizzes, exams, and questions/answers. Students will be expected to self-study posted materials on Canvas prior to each in-class session. While hybrid course format provides increased flexibility to students, they require a commitment to invest additional time and effort outside of scheduled class sessions. The curriculum covered in this course is both conceptual and hands-on applications, thus it is strongly recommended that students continuously read/review the materials related to covered topics and practice assigned problems using required tools.

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**Grading Policies:**

Following letter grades will be used:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>90.0 – 100%</td>
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<tr>
<td>B</td>
<td>80.0 – 89.99%</td>
</tr>
<tr>
<td>C</td>
<td>70.0 – 79.99%</td>
</tr>
<tr>
<td>D</td>
<td>60.0 – 69.99%</td>
</tr>
<tr>
<td>F</td>
<td>59.99% AND BELOW</td>
</tr>
</tbody>
</table>
Student performance in the course will be weighted as follows:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Exam #1</td>
<td>19%</td>
</tr>
<tr>
<td>Exam #2</td>
<td>19%</td>
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<tr>
<td>Exam #3</td>
<td>19%</td>
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<tr>
<td>Exam #4</td>
<td>19%</td>
</tr>
<tr>
<td>Final Exam (Cumulative)</td>
<td>19%</td>
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<tr>
<td>Mini Quizzes</td>
<td>20%</td>
</tr>
<tr>
<td>Class Participation (incl. In-class quizzes, attendance, etc.)</td>
<td>4%</td>
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</tbody>
</table>

**Assignments, Exams, etc.:**

**Examinations:**

There will be five exams for the course. Four mid-term exams are non-cumulative while the final exam is cumulative. The final exam will be optional. All exams will be in-class, closed-book, and closed notes.

If you take all the five exams, grades for the lowest exam will be dropped. If you miss an exam, you can take Final Exam as your make-up exam. There is no make-up for Final Exam. The exams will be given as scheduled in the syllabus during the class period. Typical duration of the first four exams will be 1 hour 10 minutes while the Final Exam will have a duration of 2 hours and 30 minutes.

Exams will only be conducted in class and in-person. To take the exam, you may be required to bring your laptop and take the exam during the class period. Please review the Belk College of Business policy regarding Laptop requirement for Upper-Level Students in Business Courses.

Exam reviews will be done once in the class. Absent students forfeit their chance to review their exam. Therefore, it is very important that all students are present during these reviews.

Exams are a form of intellectual property belonging to those who create them. Consequently, exams must remain in instructor’s possession or under instructor’s control at all the times. This means that exams may not be taken out of the room or copied. Students are encouraged to review their exams during office hours or by appointment. However, failure to return an exam after taking or reviewing it or removing an exam from instructor’s presence at any time or copying an exam will be considered theft of intellectual property. Such action will result in an exam grade of zero and may warrant further disciplinary action.

**Cell phones, smart phones, and smart watches must be silenced and stored away** (in purse, bookbag, backpack, pocket, etc.) during exams. Any usage of such during the exam (from the time exam is handed out to departure from the class) will result in a grade of zero for the exam and may warrant further disciplinary action.

**Make-up Exam Policy:**

There are no separate makeup exams. Please see above for makeup exams.

**Quizzes:**

There are two types of quizzes in the course.

**Mini Quizzes:** There will be seven in-class mini quizzes covering the course materials. Specific instructions for each mini quiz will be provided at the time mini quizzes are administered. If you miss a mini quiz, you will get a grade of zero for that quiz. One lowest mini quiz grade will be dropped.
In-class quizzes: In-class quizzes will be used to check the on-going understanding of the course materials. All the in-class quizzes will be graded. **In-class quizzes will require the use of Poll Everywhere app/website link.** Please make sure that you have access to a smartphone/tablet/laptop computer during each class. Grades for in-class quizzes will be added to the Participation grade.

In-class quizzes are intended to encourage class attendance, class engagement, participation, and provide immediate feedback to the students. Thus, in-class quizzes are only available when present in the class. There will not be any make-up for an in-class quiz if you miss it for any reason including excused absences.

Poll Everywhere will also be used for tracking class attendance.

**Extra Credit Work:**

There will be **NO EXTRA CREDIT** work offered for any student during the semester. **Please do not depend on any extra credit opportunities to improve your grade later in the semester.**

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**Class Policies:**

**Class Attendance:**

Students must attend all lectures, labs, quizzes, examinations and presentations and are expected to contribute actively to the class discussions. Class attendance is highly correlated with learning the material and performing well on the course examinations. **Tardiness or early departure are disruptive and are, of course, discouraged.** Note that (1) some topics discussed in the classroom are not covered adequately in the textbook, thus the instructor will present alternative approaches, and (2) historically, those who skip the class tend to make less than their target grades.

Attendance may be taken at any point during the class (beginning, middle, and end) and may even be checked multiple times. Any attempt to provide attendance electronically, while not physically present in the class will be considered a violation of Academic Integrity Code and will result in further disciplinary action.

Students will be held responsible for any material covered, announcements made, assignments passed out, and any other type of work that they may miss during any absence from class.

**Class Preparation and Participation:**

Students are expected to study the textbook and other posted materials (tutorials, notes, videos, presentations, etc.) **prior to each respective class session.** Additionally, students must be prepared to intelligently contribute to active class discussions and answer questions related to the current topics.

Participation refers to: regular class attendance; contributing positively, constructively, regularly, and significantly to class discussions; being well-prepared for class, as well as the timely and careful completion of assigned homework and exercises by collaborating within your groups, as needed.

Keep the instructor informed about your absences and any issues regarding class participation, well in time. 70% of the class participation grade will reflect your attendance in the class while the remaining 30% will be subjectively based on positive class engagement and participation.

**Students are expected to be prepared and contribute to the active class discussions.**

You will need to have **at least 50% class attendance to qualify for any grade for participation.**

**Due Dates Policy:**

A homework or assignment with deadline is like a ticket for a cruise. If you arrive after the scheduled departure time, the ship will have sailed without you and your ticket (homework/assignment) will be worthless. **Late homework and projects will not be accepted and will receive a grade of zero.** If you know you will miss a class, make arrangements to turn in your work ahead of time.
**Grades Appeals Policy:**
If you believe that the grade you received on an assignment or an exam was in error or unfair, you can appeal to the instructor in writing within **seven calendar days** after the grades are posted. The appeal should clearly state the reasons why you believe the grade to be unfair or the nature of the error. Overdue appeals will not be considered.

**Class Conduct Policy:**
Disruptive behavior in the class distracts from other students' ability to benefit from their in-class experience. Such behavior includes but is not limited to **side-bar conversations between two or more students during lecture**, unnecessary comments that add no value to class, arriving late, leaving early, surfing the net, and any activities that negatively impact the ability of other students to learn and/or listen in the class.

**Rude and disruptive behavior will not be tolerated.** If necessary, the instructor will deduct points from grades for any student who chooses to disrupt the class and distract others repeatedly. In particularly egregious cases, the instructor will have the student permanently removed from the class.

Under no circumstances will students be permitted to spend their class time working on assignments for other classes, checking e-mail, surfing the Web, texting, or engaging in activities not related to the class. Attempts to engage in such behavior will be reflected in lower grades and may lead to removal from the course.

**Electronic Devices in Class:**
Use of computing, communication, or other devices during the class time for purposes other than those required for the class is prohibited and may result in being asked to leave the classroom for the remainder of the class period. This includes the use of laptops, lab computers, phones or other devices for Internet browsing, game playing, reading news, emailing, texting, chatting, IM, Facebook, or other activities not required for the class. **Cell phones and other communication devices must be silenced and stored away during class.**

**Class Recording:**
Electronic video and/or audio recording is not permitted during class unless the student obtains permission from the instructor. If permission is granted, any distribution of the recording is prohibited. Students with specific electronic recording accommodations authorized by the Office of Disability Services do not require instructor permission; however, the instructor must be notified of any such accommodation prior to recording. Any distribution of such recordings is prohibited.

**E-mail Policy:**
Please use the e-mail address specified for instructor above for electronic communications. When e-mailing the instructor or graduate assistants, proper subject line must contain your course and section number (Example: OPER 3203 001). Messages missing proper subject lines may be delayed in addressing the question/concern as well as may be deleted for security reasons.

**Class Cancellation:**
In the event that the instructor is unable to attend class or the University is closed unexpectedly, assume the course material will be moved forward to the next meeting.

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**Policies Related to COVID-19 Protection:**

**Face coverings in Classrooms and Labs:**
It is the policy of UNC Charlotte for the Fall 2020 semester that as a condition of on-campus enrollment, all students are required to engage in safe behaviors to avoid the spread of COVID-19 in the 49er community. Such behaviors specifically include the requirement that all students properly wear **CDC-compliant face coverings** while in buildings including in classrooms and labs. Students are permitted to remove face coverings in classroom or lab settings only when the instructor explicitly
grants permission to do so (such as while asking a question, participating in class discussion, or giving a presentation) and while at an appropriate physical distance from others. Failure to comply with this policy in the classroom or lab may result in dismissal from the current class session. If the student refuses to leave the classroom or lab after being dismissed, the student may be referred to the Office of Student Conduct and Academic Integrity for charges under the Code of Student Responsibility.

**Policy on Absenteeism During COVID-19:**
Students are expected to attend every class and remain in class for the duration of the session when it is safe to do so in accordance with university guidance regarding COVID-19. Failure to attend class or arriving late may impact your ability to achieve course objectives which could affect your course grade. An absence, excused or unexcused, does not relieve a student of any course requirement. Regular class attendance is a student's obligation, as is a responsibility for all the work of class meetings, including tests and written tasks. Any unexcused absence or excessive tardiness may result in a loss of participation points.

Students are encouraged to work directly with their instructors regarding their absence(s). For absences related to COVID-19, please adhere to the following:

- **Complete your Niner Health Check** each morning.
- **Do not come to class if you are sick.** Please protect your health and the health of others by staying home. Contact your healthcare provider if you believe you are ill.
- **If you are sick:** If you test positive or are evaluated by a healthcare provider for symptoms of COVID-19, complete this form to alert the University. Representatives from Emergency Management and/or the Student Health Center will follow up with you as necessary, and your instructors will be notified.
- **If you have been exposed** to COVID-19 positive individuals and/or have been notified to self-quarantine due to exposure, complete this form to alert the University. Representatives from Emergency Management and/or the Student Health Center will follow up with you as necessary, and your instructors will be notified.

To return to class after being absent due to a COVID-19 diagnosis or due to a period of self-quarantine, students should submit an online request form to Student Assistance and Support Services (SASS). Supporting documentation can be attached directly to the request form and should be from a student's health care provider or the Student Health Center, clearly indicating the dates of absences and the date the student is able to return to class. Instructors will be notified of such absences.

If you are absent from class as a result of a COVID-19 diagnosis or quarantine, please consult the instructor for any accommodation to help you continue to make progress in the course. The final decision for approval of all absences and missed work is determined by the instructor.

**General Policies:**

**Student Academic Honesty/Integrity:**
Integrity is amongst the core values of the Belk College of Business. Students are responsible for knowing and observing the UNC Charlotte Code of Student Academic Integrity. All work on exams and quizzes is to be done on an individual basis. This may also be extended to certain assignments and will be specified as such in class. There is always the possibility and temptation to consult with someone who has had the course (or class) previously or to consult case/class notes or project reports from another section or from a previous year or semester or that might be available on the Internet. This practice is strictly prohibited under all circumstances and unequivocally constitutes a violation of the Code of Student Academic Integrity. Obviously, group projects involve cooperative effort.
Everyone however, is **required** to contribute to the effort for this class, and individual contributions will be evaluated through group peer review and participation score.

For this class, it is permissible to assist classmates in general discussions of computing techniques. General advice and interactions are encouraged. Each person, however, must develop his or her own solutions to the assigned homework and lab exercises. Students may not "work together" on graded assignments. Such collaboration constitutes cheating unless it is a group assignment. A student may not use or copy (by any means) another's work (or portions of it) and represent it as his/her own. If you need help on an assignment, contact your instructor or the TA, not other classmates. Any further specific requirements or permission regarding academic integrity in this course will be stated by the instructor and are also binding on the students in this course.

**Ownership of Course Materials:**
The lectures and course materials provided by the instructor including presentations, tests, quizzes, exams, videos, outlines, and similar materials are protected by copyright. The instructor is the exclusive owner of copyright in those materials that instructor has created. You are encouraged to take notes and make copies of course materials for your own educational use. However, you may not, nor you may knowingly allow others to reproduce or distribute course materials publicly without instructor’s express written consent. This includes providing materials to commercial course material suppliers such as CourseHero, Chegg, etc. and other similar services. Students who publicly distribute or display or help others publicly distribute or display copies or modified copies of the instructor’s materials may be in violation of **UNCC Code of Student Responsibility**.

**Diversity and Inclusion:**
The Belk College of Business strives to create an inclusive academic climate in which the dignity of all individuals is respected and maintained. Therefore, we celebrate diversity that includes, but is not limited to ability/disability, age, culture, ethnicity, gender, language, race, religion, sexual orientation, and socio-economic status.

**Disability Accommodations:**
Students in this course seeking accommodations to disabilities must first consult with the Office of Disability Services and follow the instructions of that office for obtaining accommodations. If you have a disability that qualifies you for academic accommodations, please provide a letter of accommodation from the Office of Disability Services during the first week of class. For more information regarding accommodations, please contact the Office of Disability Services at (704) 687-4355 or stop by their office in 230 Fretwell.

**Non-discrimination:**
All students and the instructor are expected to engage with each other respectfully. Unwelcome conduct directed toward another person based upon that person’s actual or perceived race, actual or perceived gender, color, religion, age, national origin, ethnicity, disability, or veteran status, or for any other reason, may constitute a violation of **UNCC Code of Student Responsibility**. Any student suspected of engaging in such conduct will be referred to the Office of Student Conduct.

**Religious Accommodation for Students:**
The instructor will observe **UNCC Policy Religious Accommodation for Students** on matters requiring religious accommodation. Please note that the procedure prescribed by this policy requires a notice to the instructor prior to the census date of the semester (typically, the tenth day of the instruction).

**Withdrawal from Class:**
The administration of this institution has set deadlines for withdrawal from any college-level courses. These dates and times are published in that semester’s course catalog. Administration procedures must be followed. It is the student’s responsibility to handle withdrawal requirements from any class. In other words, the instructor cannot drop or withdraw any student. You must do the proper
paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.

**Incomplete Grade:**
As per [UNCC Policy](#), incomplete grades will be granted when a student who is otherwise passing has not, due to circumstances beyond his/her control, completed all the work in the course. The missing work must be completed by the deadline specified by the instructor or during the next semester (fall or spring) in residence, but no later than 12 months after the term in which the “I” grade was assigned, whichever comes first. If the “I” grade is not removed during the specified time, a grade of “F”, “U” or “N” as appropriate is automatically assigned. *The grade of “I” cannot be removed by enrolling again in the same course.*

**Course Changes Disclaimer:**
The standards and requirements set forth in this syllabus and course schedule may be modified at any time by the course instructor. Notice of such changes will be by announcement in class and/or by changes to this syllabus posted on the course Canvas site.
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Textbook Chapters</th>
<th>Activities/Due Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>09/07</td>
<td>Introduction to Modeling and Decision Analysis; Course Overview</td>
<td>Chapter 1</td>
<td>On-line/Synch Class</td>
</tr>
<tr>
<td></td>
<td>09/09</td>
<td>Introduction to Simulation</td>
<td>Chapter 12</td>
<td>On-line/Self-study</td>
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<tr>
<td>2</td>
<td>09/14</td>
<td>Example Simulation Models</td>
<td>Chapter 12</td>
<td>On-line/Synch Class; Mini quiz 1</td>
</tr>
<tr>
<td></td>
<td>09/16</td>
<td>Example Simulation Models</td>
<td>Chapter 12</td>
<td>On-line/Self-study</td>
</tr>
<tr>
<td>3</td>
<td>09/21</td>
<td>More Example Simulation Models</td>
<td>Chapter 12</td>
<td>On-line/Synch Class; Mini quiz 2</td>
</tr>
<tr>
<td></td>
<td>09/23</td>
<td>Introduction to Linear Programming</td>
<td>Chapter 2</td>
<td>On-line/Self-study</td>
</tr>
<tr>
<td></td>
<td>09/28</td>
<td>Classes suspended due to new campus move-in</td>
<td></td>
<td></td>
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<tr>
<td>4</td>
<td>09/30</td>
<td>Review Exam #1; Introduction to Linear Programming; Linear Models</td>
<td>Chapters 2 and 3</td>
<td>On-line/Self-study</td>
</tr>
<tr>
<td>5</td>
<td>10/05</td>
<td>Exam #1</td>
<td>Chapters 1, 2, and 12</td>
<td>In-person Class</td>
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<tr>
<td></td>
<td>10/07</td>
<td>Examples of Linear Models</td>
<td>Chapter 3</td>
<td>On-line/Self-study</td>
</tr>
<tr>
<td></td>
<td>10/12</td>
<td>More Examples of Linear Model Formulations and Setup &amp; Solve via ASPE</td>
<td>Chapter 3</td>
<td>In-person Class; Mini quiz 3</td>
</tr>
<tr>
<td></td>
<td>10/14</td>
<td>Network Models</td>
<td>Chapter 5</td>
<td>On-line/Self-study</td>
</tr>
<tr>
<td>6</td>
<td>10/19</td>
<td>Example Network Models</td>
<td>Chapter 5</td>
<td>In-person Class</td>
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<tr>
<td></td>
<td>10/21</td>
<td>More Example Network Models</td>
<td>Chapter 5</td>
<td>On-line/Self-study</td>
</tr>
<tr>
<td>7</td>
<td>10/26</td>
<td>Models with Integer and Binary Variables</td>
<td>Chapter 6</td>
<td>In-person Class; Mini quiz 4</td>
</tr>
<tr>
<td></td>
<td>10/28</td>
<td>Review Exam #2; Integer Models</td>
<td>Chapter 6</td>
<td>On-line/Self-study</td>
</tr>
<tr>
<td>8</td>
<td>11/02</td>
<td>Exam #2</td>
<td>Chapters 3 and 5</td>
<td>In-person Class</td>
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<tr>
<td></td>
<td>11/04</td>
<td>Fixed Charge Problem Formulations</td>
<td>Chapter 6</td>
<td>On-line/Self-study</td>
</tr>
<tr>
<td>9</td>
<td>11/09</td>
<td>More Example Models with Integer and Binary Variables</td>
<td>Chapter 6</td>
<td>In-person Class; Mini quiz 5</td>
</tr>
<tr>
<td></td>
<td>11/11</td>
<td>Goal Programming Models</td>
<td>Chapters 6 and 7</td>
<td>On-line/Self-study</td>
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<tr>
<td>10</td>
<td>11/16</td>
<td>Example Goal Programming Models</td>
<td>Chapter 7</td>
<td>In-person Class</td>
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<tr>
<td></td>
<td>11/18</td>
<td>Review Exam #3; More Example Goal Programming Models</td>
<td>Chapter 7</td>
<td>On-line/Self-study</td>
</tr>
<tr>
<td>11</td>
<td>11/23</td>
<td>Decision Analysis</td>
<td>Chapter 14</td>
<td>In-person Class; Mini quiz 6</td>
</tr>
<tr>
<td></td>
<td>11/25</td>
<td>Example Decision Analysis Models</td>
<td>Chapter 14</td>
<td>On-line/Self-study</td>
</tr>
<tr>
<td>12</td>
<td>11/30</td>
<td>Exam #3</td>
<td>Chapters 6 and 7</td>
<td>In-person Class</td>
</tr>
<tr>
<td></td>
<td>12/02</td>
<td>More Example Decision Analysis Models</td>
<td>Chapter 14</td>
<td>On-line/Self-study</td>
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<tr>
<td>Date</td>
<td>Activity</td>
<td>Chapters</td>
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<tr>
<td>12/07</td>
<td>More Example Decision Analysis Models</td>
<td>Chapter 14</td>
<td>In-person Class: Mini quiz 7</td>
<td></td>
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<tr>
<td>12/09</td>
<td>Review Exam #4</td>
<td>Chapter 14</td>
<td>On-line/Self-study</td>
<td></td>
</tr>
<tr>
<td>12/14</td>
<td>Exam #4</td>
<td>Chapter 14</td>
<td>In-person Class</td>
<td></td>
</tr>
<tr>
<td>12/??</td>
<td>Final Exam</td>
<td>Chapters 1, 2, 3, 5, 6, 7, 12, and 14</td>
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</tbody>
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Notes:

1. **On-line/Synch Class** – This class will meet synchronously on-line in lieu of traditional/face-2-face class as directed by the UNCC notification on 08/23/2020

2. **In-person Class** – This class will meet in person, on campus, as directed by the schedule provided by the UNCC Registrar.

3. **On-line/Self-study** – This class will be self-study and review of the course materials provided by the instructor via on-line on Canvas.