**BCN 4720 Construction Planning & Control**

M.E. Rinker Sr. School of Building Construction

University of Florida

**SYLLABUS**

**Professor:** Mark Russell, PhD, PE **Office:** 125 Rinker Hall

**Office Hours:** M -F 10:30 – 16:00 or by appointment

**email:** russ1307@ufl.edu Phone: (352)273-1151

**PREREQUISITES:**

CGS 3531, BCN 3224, BCN 3611, Senior standing

**SUBJECT:**

The planning, control, and monitoring of construction projects including the use of the Critical Path Method (CPM).

**COURSE LEARNING OUTCOMES:**

1. Analyze construction documents for planning and management of construction processes. (ACCE SLO 7)
2. Assign and analyze resource requirements of a project (ACCE SLO 5)
3. Prepare, analyze, and update bar charts and critical path method networks (ACCE SLO 5)
4. Prepare various construction scheduling reports (ACCE SLO 2)
5. Apply state-of-the-art computer tools for project planning, scheduling, and control (ACCE SLO 10)
6. Perform time/cost trade-off analyses (ACCE SLO 5)
7. Create oral presentations of construction schedules (ACCE SLO 1 & 2)
8. Understand earned value method for project schedule and cost control (ACCE SLO 14)

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Assessment | CLO 1 | CLO 2 | CLO 3 | CLO 4 | CLO 5 | CLO 6 | CLO 7 | CLO 8 | Target |
| Test |  |  |  |  |  | X |  | X | At least 80% receive C- or better |
| Presentation |  |  |  |  |  |  | X |  | At least 80% receive C- or better |
| Final Project | X | X | X | X | X |  |  |  | At least 80% receive C or better |

**EXPECTATIONS:**

BCN 4720 is a Senior 1 course. The instructor expects that students will be able to learn and assimilate materials on their own. Students are also expected to comport themselves in a professional manner. Specific expectations for students include:

1. Students should review course material on their own outside of class.
2. Students should be on time for the virtual lectures and actively contribute to the course or participate in the course weekly discussion board.
3. Students should work on class assignments as if they were job assignments.



**METHOD OF INSTRUCTION:**

The course consists of 3 hours of Zoom classroom time per week including in-class assignments, workshops, and take-home exercises. Students will work on example problems, homework assignments, and assigned projects outside of class.

Students will work individually unless a specific project calls for team assignments.



**Instructor Response Time:**

The instructor will routinely check the course for postings or emails, Monday – Friday (8 am - 11 am) and sometimes on the weekend. You can anticipate a 24 to 48 hour response, Monday –Thursday for communication with the instructor. If it appears to be taking longer, feel free to send a reminder email. However, to ensure delivery of emails that don’t end up in a spam folder, ensure that you send them from the website or your UFL account.

The instructor normally grades assignments and provides feedback once a week within a week of the assignment completion date. Extra Credit is graded at the end of the week that it is submitted.

**ATTENDANCE and CLASS PARTICIPATION:**

Attendance is part of the overall grade. There are two **options** available for receiving credit for attendance. Please note: simply logging into the class time and not actively participating in class is not an indicator of attendance.

**Option 1:** Attend the regular Zoom broadcast during the class and keep your video camera on. This way the instructor will be able to determine that you are paying attention to the course and are actively engaged in the lecture. If however, you do not have a laptop camera, then you will be expected to ask at least question using the chat function so that the instructor can determine you have been participating in the course.

**Option 2**: Participate in the weekly Discussion Board. When participating in the weekly Discussion Board, you should watch all course related material including the Zoom lecture and then post a summary comment on the Discussion Board of at least 100 words. Additionally, in the following week you will be expected to review all other student posts for that topic and make meaningful comments. Simply stating “good job” and “great work” will not be accepted. The instructor will review the posts and provide feedback relative to the conversation.

**Group Projects**: There will be one major group project in which a team of 4 students will analyze a project and present their results to the class. You will be assigned into a group randomly. The team is free to establish their preferred method for communicating with each. Two class periods will be set aside to provide allocated times for the teams to meet. The presentations will be done using the Zoom feature.

Requirements for class attendance and make-up exams, assignments, and other work in the course are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.



**GRADE CALCULATION:**

|  |  |
| --- | --- |
| Project related grades | 300 points |
| Workshops/homework | 100 points |
| Attendance or Discussion Forum | 100 points |
| Tests | 200 points |
| Final Team Project | 150 points |
| Final Individual Project | 150 points |
| Total | 1000 points |

**GRADING:**

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| The point value for each assignment will be clearly indicated when assigned. |
| Letter Grade | A | A- | B+ | B | B- | C+ | C | C- | D+ | D | D- | F |
| Total Points | 930-1000 | 900-929 | 870-899 | 830-869 | 800-829 | 770-799 | 730-769 | 700-729 | 670-699 | 630-669 | 600-629 | 0-599 |
| Quality Points | 4.0 | 3.67 | 3.33 | 3.0 | 2.67 | 2.33 | 2.0 | 1.67 | 1.33 | 1.0 | 0.67 | 0.0 |

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

There is no rounding up of grades

**LATE WORK:**

Allowing some persons extra time to complete assignments while others are on time is inherently unfair. Therefore: Late work may be penalized.

* -10% for each class period late. For example, if an assignment is due on Wednesday, and you do not turn it in, you have until the beginning of the next class (Monday) to turn it in for a -10% reduction. However, it is always better to turn in work late than not at all.
* Extenuating circumstances will be evaluated by the instructor on a case by case basis. Please contact the course professor as soon as you realize you have a concern.

**HONOR CODE:**

UF students are bound by The Honor Pledge which states: We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “on my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-cde/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

The Rinker School prides itself in “Promoting professional and ethical behavior in education and practice.” As students continue their academic careers in the Rinker School, it is imperative that everyone maintains a high level of integrity. In the classroom setting, this translates into honest work being performed by all students.

**PLAGIARISM:**

This course has been taught for many years and as a result there may be a temptation to “rely on the work of others.” Should the instructor determine that a student’s work is substantially similar to that of another (either past or present) the student may be subject to a rejection of that assignment and will be cited with an honor court violation. Similarly, the use of materials, worksheets, or data from previous semesters is considered cheating. The student understands that their work is subject to electronic verification by Turnitin® or other technologies.

**STUDENTS WITH DISABILITIES:**

Students with disabilities requesting accommodations should first register with the Disability Resources Center (352-392-8565 or https://disability.ufl.edu/ ) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

**COUNSELING:**

Contact information for the Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc/Default.aspx>, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

**EVALUATIONS:**

A mid semester survey will be provided during the middle of the semester to determine how the material and course are being presented. The survey announcement will be sent by Gator Evals to allow you to log in provide your feedback. This should provide the instructor information on the effectiveness of the teaching methodology and give time to make adjustments.

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <http://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/.

**SOFTWARE:**

*DO NOT PURCHASE ANY SCHEDULING SOFTWARE AT THIS TIME*

Students MUST have a laptop computer available for use in class.

**CANVAS:**

This course utilizes Canvas as a repository for all course material including lecture notes, quizzes, forms, tutorials, and grades. It is the student’s responsibility to take advantage of the university resources to learn how to utilize Canvas.

Periodically the instructor will communicate with the class via e-mails from Canvas. Please note: Do not respond to these e-mails. If you need to communicate use the instructor’s e-mail: russ1307@ufl.edu.

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**ONLINE COURSE RECORDED MATERIAL POLICY:**

Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

**Schedule:**

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| Week | Topics  |
| 1 | Lecture: Introduction to Scheduling |
| 2 | Lecture: Understanding Logic |
| 3 | Lecture: CPM CALCULATIONS |
| 4 | Lecture: RESOURCE PLANNING |
| 5 | Lecture: PRECONSTRUCTION & PROCUREMENT SCHEDULES |
| 6 | Lecture: RESOURCE LEVELING |
| 7 | Lecture: GENERAL CONDITIONS |
| 8 | Lecture: REPORTING PROGRESS |
| 9 | Lecture: BUDGETING & CASH FLOW ANALYSIS |
| 10 | Lecture: EARNED VALUE ANALYSIS |
| 11 | Lecture: P6 |
| 12 | Lecture: GROUP PRESENTATIONS |
| 13 | Lecture: CRASHING THE SCHEDULE  |
| 14 | Lecture: TIME/COST TRADEOFF |
| 15 | Lecture: LINEAR SCHEDULING |