

**RESEARCH METHODS IN CIVIL ENVIRONMENTAL ENGINEERING**  
**CEE 700**

University of Nevada, Las Vegas  
Department of Civil and Environmental Engineering and Construction  
Fall.....

**Course Information:**

Semester: Fall.....

Lecture Day:

Lecture Time:

Lecture Location:

Credit Hours: 3

**Instructor Information:**

Instructor:

Email:

Office:

Phone:

Office Hours:

**2020-2021 Graduate Catalog Description:** Methods to improve and develop research skills and prepare students for professional careers [in civil / environmental engineering] at the graduate level. Includes principles of scientific research, ethics, writing skills, methods for compiling scientific literature, identification of research questions and specific hypotheses, presentation of research results, writing research papers, proposal preparation, preparation of grant proposals, thesis and dissertation

**Prerequisites by Topic:** Bachelor's degree in science or engineering and graduate standing

**Required Skills:** Proficient in word processing, spreadsheet, and presentation software

**Computer Usage:** Mandatory use of electronic spreadsheets, presentation graphics, and word processing

**Course Format:** This course will be conducted in a lecture/discussion format. Class lectures are premised on familiarity with assigned readings. Therefore, class material will not necessarily replicate assigned reading material, and both will be covered on exams. Students are responsible for reading the appropriate material before it is covered in lecture. Additionally, it is recommended that students bring other reading materials to each lecture (used as a reference).

## **Learning Outcomes:**

Upon completing this course you will be prepared to:

- 1. Start your research project in the UNLV graduate program, including**
  - a. Identify a project, develop an initial set of research questions, and research hypotheses
  - b. Assemble an advisory committee that can provide you with guidance to address your research questions and hypotheses
  - c. Understand CEEC department and UNLV Graduate College timelines, rules, and guidelines for completion of your graduate degree
- 2. Successfully conduct a civil/environmental engineering research project that includes**
  - a. Conduct a correct literature search that consists of satisfactory demonstration of these skills:
    - i. Locate high quality sources of data and prior research papers and reports,
    - ii. Critically and efficiently read an individual research paper or report, correctly summarize it (without plagiarism) and then correctly cite it
    - iii. Generate a complete annotated bibliography that in addition to appropriate, summarization and citation approaches (part ii)
    - iv. generate a synthesis of the findings from several articles and reports, including, comparing, and contrasting findings, and then
    - v. Using steps i through iv, cogently describe next steps for future research.
  - b. Correctly apply the scientific research method to design experiments or data collection studies; and
  - c. Collect, analyze, evaluate, archive, protect, retrieve, summarize, display, and interpret acquired data and compare to the previously published literature.
- 3. Generate and present scientific communications that include:**
  - a. Write a research prospectus (all students)
  - b. Write a dissertation proposal (PhD students) that uses a, b, c above,
  - c. Write a short proposal to seek external funding (for example from the UNLV Graduate and Professional Students' Association.
  - d. Write a thesis or dissertation, compared to writing a journal manuscript submission, including
    - i. Writing the components of a scientific communication that include abstract, introduction, materials and methods, results, discussion, conclusions, recommendations
  - e. Prepare a refereed journal manuscript for publication
- 4. Operate ethically as a well-regarded professional member of the international scientific community including:**
  - a. Being able to apply the basic principles of research ethics in terms of

- i. Appropriate attribution of others' published research
- ii. Submission of research findings to conferences and journals
- iii. Accurately acquiring, correctly evaluating, and presenting your own data
- iv. Comparison to results published by others, whether in agreement or disagreement
- v. Obtaining required permissions to use others' data, figures, images, text, programming code, designs, especially copyrighted and patented information
- vi. Correctly attributing authorship and order of authorship
- b. Being able to Conduct an ethical peer-review of submitted research manuscripts that includes:
  - i. Ensuring anonymity
  - ii. Avoiding bias and conflict of interest when agreeing to review and serving as a reviewer
  - iii. Preparing a constructive evaluation of submitted manuscript  
Protecting a submitted manuscript's intellectual property

**The “How” – how will we be learning this information and then manifesting our learning to the instructor and to each other?**

**A. This class uses a lot of active learning strategies. There will be minimal lecturing**

1. Ask you to read an article or document and complete a structured assignment, working on this for 15 minutes to 30 minutes then report out, or
2. Work with the Engineering Librarian to develop library database searching skills along with preparation of annotated bibliographies (literature reviews) and properly formatted bibliographic citation lists
3. Provide you with guidance on watching a sequence of training videos on data integrity or manuscript reviewing, or ethics in science, and then complete a response piece that will require you to collect, analyze and present additional information
4. Twice ask you to prepare and present to your peers in class t, orally and in writing a draft research proposal,
  - a. the first one to be short, for the Graduate and Professional Students Association (which you can later submit)
  - b. the 2<sup>nd</sup> one as a longer draft prospectus for your own research degree (master's or PhD) – this will be your culminating experience for the class

**B. Texts and learning resources to help you do a good job in this class**

- 1) **Civil and Mechanical Engineering Computer Lab, TBE B367** – Workstations in this lab have the speed and bandwidth to let us complete the video lessons on

manuscript reviewing, databases, and the importance of data archiving, data back up and data sharing in USA federally funded projects

- 2) **UNLV CEEC Graduate Student Handbook.** Available at CEE 700 WebCampus site or download from:

<https://www.unlv.edu/sites/default/files/assets/degrees/engineering/Handbook-MSE-CivilEnvironmentEngineeringConstruction.pdf>

- 3) **UNLV CEE 700 Library resource page** <https://guides.library.unlv.edu/CEE700>

- 4) **K. L. Turabian, A Manual for Writers of Research Papers, Theses, and Dissertations**, Eighth Edition, available at the UNLV Library. See:

[https://unlv-primo.hosted.exlibrisgroup.com/primo-explore/fulldisplay?docid=01UNLV\\_ALMA21192775590004081&context=L&vid=UNLV&lang=en\\_US&search\\_scope=EVERYTHING&adaptor=Local%20Search%20Engine&tab=default\\_tab&query=any,contains,turabian&mode=Basic](https://unlv-primo.hosted.exlibrisgroup.com/primo-explore/fulldisplay?docid=01UNLV_ALMA21192775590004081&context=L&vid=UNLV&lang=en_US&search_scope=EVERYTHING&adaptor=Local%20Search%20Engine&tab=default_tab&query=any,contains,turabian&mode=Basic)

- 5) **APA Style Manual, 6<sup>th</sup> edition, 2010.** Available at the UNLV Library. See:

[https://unlv-primo.hosted.exlibrisgroup.com/primo-explore/fulldisplay?docid=01UNLV\\_ALMA21183165240004081&context=L&vid=UNLV&lang=en\\_US&search\\_scope=EVERYTHING&adaptor=Local%20Search%20Engine&tab=default\\_tab&query=any,contains,APA%20Style%20manual](https://unlv-primo.hosted.exlibrisgroup.com/primo-explore/fulldisplay?docid=01UNLV_ALMA21183165240004081&context=L&vid=UNLV&lang=en_US&search_scope=EVERYTHING&adaptor=Local%20Search%20Engine&tab=default_tab&query=any,contains,APA%20Style%20manual)

**C. People who co-teach with me and can help you do a great job for this class**

- a. **Sue Waincott. Engineering Librarian.** To help you with searching strategies and search resources **Email:** [sue.waincott@unlv.edu](mailto:sue.waincott@unlv.edu)
- b. **Meagan Madariaga-Hopkins.** College of Engineering Technical Writer. To help you with recommended edits to your written manuscripts. **Email:** [meagan.madariaga-hopkins@unlv.edu](mailto:meagan.madariaga-hopkins@unlv.edu)
- c. **Ethics workshop.** Meagan and Sue put on a research ethics workshop which is required attendance for this class.
- d.

**D. Getting class information:**

- a. UNLV WebCampus® will be used to post assignments, resources, and course-related information
- b. Files and assignments will be posted in the WebCampus Module and file system
- c. I will set up the discussion boards for use this term,

d. I will send announcements using WebCampus™ announcement system

E. **Attendance and participation:** Come to class prepared to engage and learn!

- Class time will start with in-class assignments that will become homework assignments. Generally lecturing will be minimal.
  - I will introduce the day's topic and then have you get to work on it with your assigned partner via WebEx, Skype, Face Time, Google Meet, Zoom, Discord or another online platform
  - In 2019 I gave only one all-class hour lecture on data reduction and error analysis (which I will probably convert to PowerPoint™ this year and walk the class through during a remote session)
- Significant interactions with others will be needed you are expected to be an active participant in the course. However, if it is an individual assignment what you turn in to me must entirely be your own work
- Attendance is required. Inform instructor in advance of upcoming excused absences (e.g., military service, other school obligation, medical procedure). *When a class is missed, regardless of the reason, you remain individually responsible for content that was covered and assignments that were made and unless you were very ill or called away for military service or a family emergency, you must still submit the assignments on time.*
- It is a good idea you to exchange contact information so that you can meet your assigned partner or partners in a safe manner online

**Grading**

Point accumulation in this class is cumulative throughout the semester. Some assignments, such as in-class worksheets and homeworks will have lower point values than assignments such as your draft research proposal, oral research presentations and literature reviews. An approximate percentage of points is as follows:

<b>Homeworks and in class assignments</b>	<b>50%</b>
<b>Online modules</b>	<b>20%</b>
<b>Ethics workshop</b>	<b>10%</b>
<b>First and 2<sup>nd</sup> oral presentation of draft proposal</b>	<b>10%</b>
<b>Written researched draft research proposal</b>	<b>10%</b>

F. **How to earn an “A” in this class**

- Quality not Quantity! Most of the assignments in this class are short *However, what is most critical for your grade is the quality of your thinking and background research/look up efforts that go into each assignment.* The

“throughout the term” assignments help you to build skills that point towards your draft research proposal to be ready at the end of the term, and the final written proposal itself will probably be only about 10 pages.

- Keep up with your class assignments, and turn everything in well-done and on time, and you will be able to ‘coast’ into the end of the term without having to pull any “all-nighters”!!
  - Assignments are due on the date and time stated on the header of the assignment. Late submissions will be penalized 10% of point value per day up to 50%.
- The standard course expectation for homeworks, preparation of presentation, reports and proposals is that you will do this work independently, that it will be original content developed by you and not copied from other sources, and that you completed the work with NO outside assistance, unless an assignment’s instructions explicitly tell you to collaborate. You are instructed to avoid collaboration unless you are otherwise told to collaborate or work in a team.
- ***In the past I have had to discipline CEE 700 students who copied each other’s work or plagiarized from other sources! Discipline included grade reduction or mandatory fail of the class.***
- This course is letter graded (A B C D F). If your overall score for the course is:

90-100%	your letter grade will be no lower than:	A-
80-89%		B-
70-79%		C
60-69%		D
<59%		F

***Please note that only graduate course grades of “B” (3.0 out of 4.0) or better can count towards completion of your graduate degree, and you must maintain an overall GPA of 3.0/4.0 or higher to successfully complete the coursework requirement component of your graduate degree.***

**Also: You are assigned to attend the entire Engineering Ethics workshop** and then generate the follow-on assignment It is required for you attend this session; we will eliminate one regularly scheduled class to accommodate it

**Final Date:** to drop or withdraw from this class without a refund, or change from credit to audit, is November .....

**Date, Time, and Location of Final Examination:** There won’t be final exam.

**Disclaimer:** The contents of this document are to be considered “tentative” and subject to change as the instructor deems necessary.

The week by week assignment schedule is shown on the last two pages.

## **UNIVERSITY POLICIES**

### **Public Health Directives**

[Face coverings are mandatory for all faculty and students in the classroom.](#) Students must follow all active UNLV public health directives while enrolled in this class. [UNLV public health directives](#) are found at <https://www.unlv.edu/coronavirus/health-requirements>. Students who do not comply with these directives may be asked to leave the classroom. Refusal to follow the guidelines may result in further disciplinary action according to the [UNLV Code of Student Conduct](#), [https://www.unlv.edu/sites/default/files/page\\_files/27/StudentConduct-Code.pdf](https://www.unlv.edu/sites/default/files/page_files/27/StudentConduct-Code.pdf), including being administratively withdrawn from the course.

### **Academic Misconduct**

Academic integrity is a legitimate concern for every member of the University community. We all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility, and professionalism. By choosing to join the UNLV community, students accept the expectations of the Student Academic Misconduct Policy, and are encouraged to always take the ethical path whenever faced with choices. Students enrolling at UNLV assume the obligation to conduct themselves in a manner compatible with UNLV’s educational mission. An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another person, from the Internet or any other source without proper citation of the source(s). See the [Student Conduct Code](#), <https://www.unlv.edu/studentconduct/student-conduct>.

### **Auditing Classes**

Auditing a course allows a student to continue attending the lectures and/or laboratories and discussion sessions associated with the course, but the student will not earn a grade for any component of the course. Students who audit a course receive the same educational experience as students taking the course for a grade, but will be excused from exams, assessments, and other evaluative measures that serve the primary purpose of assigning a grade.

### **Classroom Conduct**

Students have a responsibility to conduct themselves in class and in the libraries in ways that do not interfere with the rights of other students to learn, or of instructors to teach. Use of electronic devices such as pagers, cellular phones, or recording devices, or potentially disruptive devices or activities are only permitted with the prior explicit consent of the



instructor. The instructor may rescind permission at any time during the class. If a student does not comply with established requirements or obstructs the functioning of the class, the instructor may initiate an administrative withdrawal of the student from the course.

## **Copyright**

The University requires all members of the University Community to familiarize themselves with, and to follow copyright and fair use requirements. You are individually and solely responsible for violations of copyright and fair use laws. The University will neither protect nor defend you, nor assume any responsibility for employee or student violations of fair use laws. Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. Additional [copyright policy information](https://www.unlv.edu/provost/copyright) is available at <https://www.unlv.edu/provost/copyright>.

## **Disability Resource Center (DRC)**

The [UNLV Disability Resource Center](https://www.unlv.edu/drc) (SSC-A, Room 143, <https://www.unlv.edu/drc>, telephone 702-895-0866) provides resources for students with disabilities. Students who believe that they may need academic accommodations due to injury, disability, or due to pregnancy should contact the DRC as early as possible in the academic term. A Disabilities Specialist will discuss what options may be available to you. If you are registered with the UNLV Disability Resource Center, bring your Academic Accommodation Plan from the DRC to the instructor during office hours, so that you may work together to develop strategies for implementing the accommodations to meet both your needs and the requirements of the course. Any information you provide is private and will be treated as such. To maintain the confidentiality of your request, please do not approach the instructor in front of others to discuss your accommodation needs.

## **Final Examinations**

The University requires that final exams given at the end of a course occur on the date and at the time specified in the Final Exam schedule. The Final Exam schedule is typically available at the start of the semester, and the classroom locations are available approximately one month before the end of the semester. See the [Final Exam Schedule](https://www.unlv.edu/registrar/calendars), <https://www.unlv.edu/registrar/calendars>.

## **Identity Verification in Online Courses**

All UNLV students must use their Campus-issued ACE ID and password to log in to WebCampus-Canvas.

UNLV students enrolled in online or hybrid courses are expected to read and adhere to the [Student Academic Misconduct Policy](https://www.unlv.edu/studentconduct/misconduct/policy), <https://www.unlv.edu/studentconduct/misconduct/policy>, which states that “acting or attempting to act as a substitute for another, or using or attempting to use a substitute, in any academic evaluation or assignment” is a form of academic misconduct. Intentionally



sharing ACE login credentials with another person may be considered an attempt to use a substitute, and could result in investigation and sanctions, as outlined in the Student Academic Misconduct Policy.

UNLV students enrolled in online courses are also expected to read and adhere to the [Acceptable Use of Computing and Information Technology Resources Policy](https://www.it.unlv.edu/policies/acceptable-use-computing-and-information-technology-resources-policy), <https://www.it.unlv.edu/policies/acceptable-use-computing-and-information-technology-resources-policy>, which prohibits sharing university accounts with other persons without authorization.

To the greatest extent possible, all graded assignments and assessments in UNLV online courses should be hosted in WebCampus-Canvas or another UNLV-managed platform that requires ACE login credentials for access.

### **Incomplete Grades**

The grade of “I” (Incomplete) may be granted when a student has satisfactorily completed three-fourths of course work for that semester/session, but cannot complete the last part of the course for reason(s) beyond the student’s control and acceptable to the instructor, and the instructor believes that the student can finish the course without repeating it. For undergraduate courses, the incomplete work must be made up before the end of the following regular semester. Graduate students receiving “I” grades in 500-, 600-, or 700-level courses have up to one calendar year to complete the work, at the discretion of the instructor. If course requirements are not completed within the period indicated, a grade of “F” will be recorded, and the student’s GPA will be adjusted accordingly. Students who are fulfilling an Incomplete grade do not register for the course, but make individual arrangements with the instructor who assigned the “I” grade.

### **Library Resources**

Librarians are available to consult with students on research needs, including developing research topics, finding information, and evaluating sources. To make an appointment with a subject expert for this class, please visit the [Libraries’ Research Consultation](https://guides.library.unlv.edu/appointments/librarian) website, <https://guides.library.unlv.edu/appointments/librarian>. You can also [ask the library staff](https://ask.library.unlv.edu/) questions via chat and text message at <https://ask.library.unlv.edu/>.

### **Missed Classwork**

Any student missing class, quizzes, examinations, or any other class or laboratory work because of observance of religious holidays will be given an opportunity during that semester to make up the missed work. The make-up opportunity will apply to the religious holiday absence only. It is the responsibility of the student to notify the instructor within the first 14 calendar days of the course for Fall and Spring courses (except for modular courses), or within the first 7 calendar days of the course for Summer and modular courses, of their intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit the Missed Work policy,

under Registration Policies, on the [Academic Policies](https://catalog.unlv.edu/content.php?catoid=29&navoid=7326) webpage, <https://catalog.unlv.edu/content.php?catoid=29&navoid=7326> .

In accordance with the policy approved by the Faculty Senate regarding missed class time and assignments, students who represent UNLV in any official extracurricular activity will also have the opportunity to make up assignments, provided that the student provides official written notification to the instructor no less than one week prior to the missed class(es).

The spirit and intent of the policy for missed classwork is to offer fair and equitable assessment opportunities to all students, including those representing the University in extracurricular activities. Instructors should consider, for example, that in courses which offer a “Drop one” option for the lowest assignment, quiz, or exam, assigning the student a grade of zero for an excused absence for extracurricular activity is both contrary to the intent of the Faculty Senate’s policy, and an infringement on the student’s right to complete all work for the course.

This policy will not apply in the event that completing the assignment or administering the examination at an alternate time would impose an undue hardship on the instructor or the University that could be reasonably avoided. There should be a good faith effort by both the instructor and the student to agree to a reasonable resolution. When disagreements regarding this policy arise, decisions can be appealed to the Department Chair/School Director, College/School Dean, and/or the Faculty Senate Academic Standards Committee.

For purposes of definition, extracurricular activities may include, but are not limited to: academic recruitment activities, competitive intercollegiate athletics, fine arts activities, liberal arts competitions, science and engineering competitions, and any other event or activity sanctioned by a College/School Dean, and/or by the Executive Vice President and Provost.

### **Rebelmail**

Rebelmail is UNLV’s official email system for students and by University policy, instructors and staff should only send emails to students’ Rebelmail accounts. Rebelmail is one of the primary ways in which students receive official University communications, information about deadlines, major Campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the University. Emailing within WebCampus-Canvas is also acceptable.

### **Tutoring and Coaching**

The Academic Success Center (ASC) provides tutoring, academic success coaching, and other academic assistance for all UNLV undergraduate students. For information regarding tutoring subjects, tutoring times, and other ASC programs and services, please visit the [ASC website](https://www.unlv.edu/asc), <https://www.unlv.edu/asc>, or call 702-895-3177. The ASC building is

located across from the Student Services Complex (SSC). Academic success coaching is located on the second floor of SSC A, Room 254. Drop-in tutoring is located on the second floor of the Lied Library, and on the second floor of the College of Engineering building (TBE A 207).

### **UNLV Writing Center**

One-on-one or small group assistance with writing is available free of charge to UNLV students at the [Writing Center](https://writingcenter.unlv.edu/), <https://writingcenter.unlv.edu/>, located in the Central Desert Complex, Building 3, Room 301 (CDC 3–301). Walk-in consultations are sometimes available, but students with appointments receive priority assistance. Students may make appointments in person or by calling the Center, telephone 702-895-3908. Students are requested to bring to their appointments their Rebel ID Card, a copy of the instructions for their assignment, and two copies of any writing they have completed on their assignment.

### **Diversity Statement**

As an institution of higher learning, UNLV represents a rich diversity of human beings among its faculty, staff, and students, and is committed to aspiring to maintain a Campus environment that values that diversity. Accordingly, the University supports understanding and appreciation of all members of its community, regardless of race, sex, age, color, national origin, ethnicity, creed, religion, disability, sexual orientation, gender, gender identity, marital status, pregnancy, genetic information, veteran status, or political affiliation. Please see [University Statements and Compliance](https://www.unlv.edu/about/statements-compliance), <https://www.unlv.edu/about/statements-compliance> .

A successful learning experience requires mutual respect and trust between the students and the instructor. Accordingly, the instructor asks that students be willing to listen to one another's points of view, acknowledging that there may be disagreements, keep discussion and comments on topic, and use first person, positive language when expressing their perspectives.

**Course Schedule & Assignment List (Fall 2019 – with changes for 2020 (transition to Remote learning) shown**

Week #	Hwk issue Date and due date	Hwk #	Hwk name	Module # name, changes recommendations for fall 2020	Wee k#	Incl date	Inclass #	Inclass name	Module # name, changes and recommendations for fall 2020
1	8/27/19 9/9/19	1	Applying search strategies in subscription databases, evaluating journals	3 - Effective searching for information resources (requires 2)	1	8/26/29	1	Identifying Research Problem Statement and hypothesis – see also zip file of articles	2- Introduction to the scientific method
1	8/29/19 9/11/19	2	Learn how to locate and read research articles in your specialty area in interpret both problem statements and hypotheses	3 - Effective searching for information resources (requires 2)	1	8/27/19 9/4/19	2	Summarizing scientific method	2 – Introduction to the scientific method
3	9/8/19 9/16/19	3	Writing a Research Summary	4 – Effectively using the literature (requires 2 and 3)	2	9/4/19	3	Issued 8/28/19 2Library assignment Finding information Eureka Room	3 - Effective searching for information resources (requires 2)
3	9/8/19 9/18/19	4	Annotated Bibliography – build skills in generating literature reviews	4 – Effectively using the literature (requires 2 and 3)	3	9/9/19 9/16/19	4	Writing a good summary of a research article	4 – Effectively using the literature (requires 2 and 3)
4	9/15/19 9/30/19	5 and 5 template	Locating a scientific controversy in your field of inquiry	4 – Effectively using the literature (requires 2 and 3)	3	9/11/19	5	Writing an annotated bibliography – reading and evaluating Sue Wainscotts’ 2015 document	4 – Effectively using the literature (requires 2 and 3)
4	9/18/19 10/2/19	6	ACS Reviewer Lab - <u>online</u>	5 – Reviewing articles, what to expect when you submit (requires 2 and 4)	4	9/16/19 9/18/19	6	Conflicts among research groups – reading Hein and deRidder (2006) and Prince et al (2007)	4 – Effectively using the literature (requires 2 and 3)
6	10/2/19 10/14/19	7	Instrument Measurement Uncertainty in your sub-discipline Partmeasuremetns.CEE700.xlsx file needed	6- Instrumental measurements (requires 2)			6controversy examples	PDFs of articles to go with inclass #6	4- Effectively using the literature (requires 2 and 3)
7	10/9/19 10/14/19	7 part 2	Demonstrations of Readability, Accuracy, Precision, turn in with hwk 7	6 – Instrumental measurements (requires 2)	6	10/2/19 10/14/19	7	Measurement uncertainties Turn in with hwk 7 – needed correction document issued 10/20/19	6 – Instrumental Measurements (requires 2)

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Week #	Hwk issue Date and due date	Hwk #	Hwk name	Module # name, changes recommendations for fall 2020	Week #	Incl date	Inclass #	Inclass name	Module # name, changes and recommendations for fall 2020
9	10/21/19 10/28/19	8	TED talk – research for your first oral presentation, Meagan Madariaga-Hopkins	7 – Presenting research findings effectively (requires 4,5)	8	10/16/19 10/21/19	8	Critiquing TED talks	7 – Presenting research findings effectively (requires 4,5)
11	11/6/19 11/13/19	9	Preparing a budget for a Research Grant application	9 – Proposing research, writing a grant (requires 2,3,4,5,6,7,8)	9	10/21/19	9	Databases: organizing, searching, archiving	8 – Organizing and archiving your data (requires 2.5.6)
11	11/6/19 11/13/19	9	Worked example, preparing a budget for a Research Grant application	9 – Proposing research, writing a grant (requires 2,3,4,5,6,7,8)	10	10/28/19	10	Data management plan blank template, NSF document	8- Organizing- and archiving your data requires 2.5.6)
11	11/6/19 11/13/19	9	Excel template for preparing a budget for a grant and completed example	9 – Proposing research, writing a grant (requires 2,3,4,5,6,7,8)	10	10/28/19	10	Data management plan, Dave James completed example	8 – Organizing and archiving your data requires 2.5.6)
12	11/13/19 11/27/19	10	Your progress through the degree program	10 – Organizational steps to graduate	10	10/28/19	10	Data Management plan exercise, <b>online videos</b>	8 – Organizing and archiving your data requires 2.5.6)
13	11/18/19 11//27/19	11	Writing a small grant proposal	9 – proposing research, writing a grant (requires 2,3,4,5,6,7,8)					
13	11/18/19 11/27/19	11	Grant proposal worksheet	9 – proposing research, writing a grant (requires 2,3,4,5,6,7,8)					
13	11/18/19 11/27/19	11	Grant proposal template	9 – proposing research, writing a grant					
13	11/18/19 12/9/19 12/11/19	12	Oral grant proposal presentation	11 – presenting your proposal (requires 7, 8, 9)					
13	11/20/19 12/4/19	13	Getting published – <b>Sage Publications online course</b>	12 – publishing papers (requires 2,3,4,5,6,7,8)					