

SCI 1301: Research Foundations

Course Syllabus: Spring 2022

Course Information

Mondays & Wednesdays 11:30 AM – 12:50 PM

Chemistry & Computer Science Building (CCSB), Ground Level (G), Room G.0706A

Instructor Information

Instructor

Dr. Elizabeth Day

elday@utep.edu

Email is the best way to reach me. Please allow me 48 hours to respond, and then send a *polite* reminder. If you send me a message through Blackboard, I likely will never see it.

To expedite a response, please put “SCI 1301: [topic of email]” in the subject line

Dr. Day's office: CCSB 2.0114

Office hours: [online](#), Mondays and Wednesdays 10 – 11 AM or by appointment

Course Description

The course will help you organize, retrieve, and connect information the way expert researchers do. Learners in this section will be introduced to research foundations applicable to many disciplines through the gateway of “science in society.” Through workshops as well as collaborative and individual work, you will learn and practice common elements of the research cycle, from idea to dissemination, including: (1) review of primary versus secondary literature and analysis of the connectivity between various STEM disciplines; (2) the use of university resources for information access, online bibliographic management, and student assistance; (3) proper methods to maintain a research notebook and organize research documentation; (4) safe and responsible conduct of research, including biosafety and the use of human and animal subjects in research; (5) formats for data presentation and methods of analysis; (6) communicating research results to various audiences, orally and in writing, and (7) possible career paths for individuals with STEM degrees. Learners will participate in a final project to gain understanding of the components of launching scientific research.

Overall Course Goals

Overarching Goal: Science & Society – understanding how science works to benefit the real world

- Integrate and apply aspects of the scientific process to examine issues relevant to the local and scientific communities
- Design and conduct a small-scale investigation that reflects the interdisciplinary and collaborative nature of the scientific enterprise
- Read and interpret scientific literature, including both primary and secondary sources
- Generate and present written and oral deliverables that communicate science to both disciplinary and layperson audiences
- Describe and implement core ethics/responsible conduct in research (RCR) principles throughout all aspects of the scientific process

Course Evaluation

Below 60 F	60 – 69.9 D	70 – 79.9 C	80 – 89.9 B	90 – 100 A
Note: Learners need to obtain a grade of C or better to pass this class.				

The final day to withdraw from this class is April 1st. No requests for a withdrawal will be approved after that date. Learners can always petition the Registrar for a complete withdrawal from the course pending documentation.

<i>Course Component</i>	<i>Percentage of Final Grade</i>
Homework	25%
Attendance & Team Presentations	30%
Proposal Paper	20%
Proposal Presentation and Pitch	25%

Homework assignments for readings and analysis will be issued in class. In addition, learners will be expected to provide thoughtful commentary and discussion in class regarding the content of the assigned reading.

Team presentations will be in-class activities, which may be collected at the end of class for evaluation and feedback. These assignments require that you attend class in order to receive credit.

Proposal paper and presentation will be the culmination of this course. The research project developed by learners will be evaluated on the choice of research question, development of a hypothesis, research of the topic, and presenting the project effectively.

Proposal Paper

This written report will be submitted by the team and follow the provided writing rubric for style and format as well as the details about what each section must contain. The topic must be an approved interdisciplinary topic or approach to answering a research question. The evaluation of this paper will be weighted as such:

- Style and formatting – 10%
- Introduction – 30%
- Materials and Methods – 30%
- Predicted Outcome and Impacts – 20%
- References – 10%

Proposal Presentation

The team (~3 people per team) will present their proposal in an elevator pitch for approval and feedback. Keep in mind that this is 20% of your presentation grade.

The other 80% of your presentation grade will be from the presentation of your team's final proposal. In the final proposal presentation:

- Each team member will be responsible for crafting two slides in the presentation and have two minutes to present their slides.
- Each slide should flow into the next to create a cohesive and unified presentation that presents:
 - Background information about the problem or research question

- The hypothesis that your team will explore
- The study design to test that hypothesis and achieve your overall goal

Slide content: For the proposal, half (50%) of the available points will evaluate the slide content – information, presentation components outlined above, slide legibility, and content that complements and emphasizes the presenter’s speech, rather than mirrors it directly.

Presentation flow: There is also evaluation (10%) of the presentation’s overall “flow”, demonstrating that the team has prepared and practice the presentation, has consistent formatting, and smooth transitions between speakers.

Time and attendance: Teams will be evaluated (10%) on sticking within the allotted time and attending the presentation days.

Answering audience questions: Teams will also be evaluated (10%) on their ability to answer audience questions about their presentation.

Policies

Safe Space

This class will be treated as a safe space, an atmosphere where each student feels comfortable and respected. To that end, we will follow a “golden rule” format. Treat each other as you would like to be treated in class discussions. Disagreement is both accepted and highly encouraged; however, we must remember that while respectful discussion is often fruitful, insults and badgering are not and will not be tolerated.

Absences

After 3 unexcused absences you will be given a warning. After the 4th unexcused absence, you may be dropped from the course. If your absence is necessary, please contact Dr. Day ahead of time to discuss.

Tardiness

If you are 10 or more minutes late for class, points may be subtracted from your daily attendance score.

Missed Assignments & Deadlines

Quizzes and in-class assignments cannot be made up without an excused absence. Some deadlines may be extended with an excused absence from Dr. Day. Please see Dr. Day for verifying the excused absence properly.

Technology

Some course content is delivered via the Internet through the Blackboard learning management system. Ensure your UTEP e-mail account is working and that you have access to the Web and a stable web browser. Google Chrome and Mozilla Firefox are the best browsers for Blackboard; other browsers may cause complications. When having technical difficulties, update your browser, clear your cache, or try switching to another browser.

If you do not have a word-processing software, you can download Word and other Microsoft Office programs (including Excel, PowerPoint, Outlook and more) for free via UTEP’s Microsoft Office Portal. Click the following link for more information about [Microsoft Office 365](#) and follow the instructions.

IMPORTANT: If you encounter technical difficulties beyond your scope of troubleshooting, please contact the UTEP [Help Desk](#) as they are trained specifically in assisting with technological needs of learners. Please do not contact me for this type of assistance. The Help Desk is much better equipped than I am to assist you!

Student Conduct

Class Environment

Cell phones must be placed in Do Not Disturb/Airplane mode. Use of cell phones for personal business rather than class work may result in points docked from your attendance score for that day. Each student is responsible for notice of and compliance with the provisions of the Regents' [Rules and Regulations](#). Use of laptops and tablets are allowed only when specifically requested by the instructor.

No liquids or foods are allowed in the classroom. Please leave your beverages/food outside the room.

Academic Dishonesty

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as one's own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the [Office of Student Conduct and Conflict Resolution \(OSCCR\)](#) for possible disciplinary action. To learn more, please visit [HOOP: Student Conduct and Discipline](#).

Plagiarism

"Plagiarism" means the appropriation of another person's ideas, processes, results, or words without giving appropriate credit. This includes intentionally, knowingly, or carelessly presenting the work of another as one's own; failing to credit sources used in a work product; attempting to receive credit for work performed by another; failing to cite the World Wide Web, databases, and other electronic resources. Written work will be checked for plagiarism.

Learners with Disabilities Policy

The University is committed to providing reasonable accommodations and auxiliary services to students, staff, faculty, job applicants, applicants for admissions, and other beneficiaries of University programs, services and activities with documented disabilities in order to provide them with equal opportunities to participate in programs, services, and activities in compliance with sections 503 and 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act (ADA) of 1990 and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008. Reasonable accommodations will be made unless it is determined that doing so would cause undue hardship on the University. Students requesting an accommodation based on a disability must register with the [UTEP Center for Accommodations and Support Services](#) (CASS). Contact the Center for Accommodations and Support Services at 915-747-

5148, or email them at cass@utep.edu, or apply for accommodations online via the [CASS portal](#).

COVID-19 Policy

Please stay home if you (1) have been diagnosed with COVID-19, or (2) are experiencing COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, and alternative instruction will be provided. The Student Health Center is equipped to provide COVID 19 testing.

The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear face masks when indoors in groups of people. The best way that Miners can take care of Miners is to get the vaccine. If you still need the vaccine, it is widely available in the El Paso area, and will be available at no charge on campus during the first week of classes. For more information about the current rates, testing, and vaccinations, please visit epstrong.org

Syllabus Change Policy

This syllabus is a guide for the course and is subject to change without advance notice.

Course Schedule

Week	Date	Topic	Assignment(s)
1	Wednesday, Jan 19	Syllabus Introductions Course how-to	Video: Science & Society <i>Getting to Know You</i> Assignment – Due Sunday 11:30 PM <i>Science in your Feed</i> Assignment – Due Sunday 11:30 PM Journal #1 - Due Sunday 11:30 PM
2	Monday, Jan 24	Science & Society Who and what drives research?	Video: Primary vs Secondary Literature; Scientific Publication Practices
	Wednesday, Jan 26	Scientific literature Navigating academic research databases Select primary article for class discussion	Read paper selected during class Video: “Anatomy of a research paper” <i>Evaluating primary literature</i> Assignment – Due Sunday 11:30 PM
3	Monday, Jan 31	How to read primary literature	Video: The annotated bibliography <i>Re-Evaluating primary literature</i> Assignment – Due Tuesday 11:30 PM
	Wednesday, Feb 2	Team selection activity	<i>Preliminary research interests</i> Team Assignment – Due Sunday 11:30 PM, bring to class on Monday Journal #2 - Due Sunday 11:30 PM
4	Monday, Feb 7	Building a library of scientific literature Assign papers to team members Citation format & purpose	Video: summarizing/paraphrasing the literature <i>Initial Citations List</i> Assignment– Due Sunday 11:30 PM
	Wednesday, Feb 9	WORKSHOP DAY: Interpreting the papers you selected	<i>Primary source dissection</i> worksheet – Due Sunday 11:30 PM, have available for Monday

5	Monday, Feb 14	Paraphrasing and summarizing the literature Summary writing activity	<i>Preliminary Annotations</i> Assignment – Due Tuesday 11:30 PM, have available for Wednesday
	Wednesday, Feb 16	WORKSHOP DAY: summarizing a library of information Peer review of annotated bibliographies	Video: Giving Good Feedback <i>Thinking About the Players</i> Team Assignment – Due Sunday 11:30 PM
6	Monday, Feb 21	WORKSHOP DAY: Developing a whole-team synthesis	Videos: Making an Argument, Framing Your Rationale, and How to Torture Your Audience Journal #3 – Due Sunday 11:30 PM
	Wednesday, Feb 23	WORKSHOP DAY: Developing the “elevator pitch”	Video: Types of Scientific Presentation <i>Annotated Bibliography Final</i> Team Assignment – Due Sunday 11:30 PM
7	Monday, Feb 28	State of the State (SoS) Elevator pitches Peer review	
	Wednesday, Mar 2	State of the State (SoS) Elevator pitches Peer review	Peer review due Wednesday 11:30 PM Journal #4 - Due Sunday 11:30 PM
8	Monday, Mar 7	Developing scientific question The challenge of “testability”	Video: Research Ethics <i>Preliminary research questions</i> Team Assignment – Due Tuesday 11:30 PM, have available for Wednesday
	Wednesday, Mar 9	Research considerations: ethics, practicality, funding, etc. Presenting research questions to class and peer review	<i>Ethics</i> Team Assignment – Due Sunday 11:30 PM Journal #5 – Due Sunday 11:30 PM
9	Monday, Mar 14	Spring Break!	
	Wednesday, Mar 16		
10	Monday, Mar 21	Writing the Introduction: combining your literature review and research question	<i>Finalized research question</i> Team Assignment – Due Tuesday 11:30 PM, have available for Wednesday
	Wednesday, Mar 23	WORKSHOP DAY: Developing your introduction Peer review of team introduction, RQ, and ethics	<i>Introduction First Draft</i> Team Assignment – Due Sunday 11:30 PM Journal #6 – Due Sunday 11:30 PM
11	Monday, Mar 28	Experimental Design	<i>Experimental Design</i> Assignment – Due Tuesday 11:30 PM, have available for Wednesday
	Wednesday, Mar 30	Quantitative Reasoning	Video: Data Analysis and Visualization

			<i>Experimental Design</i> Team Assignment – Due Sunday 11:30 PM
12	Monday, Apr 4	Peer review of team experimental design	<i>Pre-Registration</i> Team Assignment – Due Sunday 11:30 PM, have available for Monday
	Wednesday, Apr 6	Construct a team storyboard for experiment	Journal #7 – Due Sunday 11:30 PM
13	Monday, Apr 11	Writing the Methods section	
	Wednesday, Apr 13	WORKSHOP DAY: Developing your Methods	<i>Methods First Draft</i> Team Assignment – Due Sunday 11:30 PM
14	Monday, Apr 18	WORKSHOP DAY: Formatting first draft of proposal	<i>First draft of proposal</i> Team Assignment – Due Tuesday 11:30 PM
	Wednesday, Apr 20	Peer review of first draft of proposals	<i>Peer Review of Proposal Draft</i> Assignment – Due Sunday 11:30 PM
15	Monday, Apr 25	Presenting a visual argument: constructing visual aids	
	Wednesday, Apr 27	WORKSHOP DAY: Prepare for Shark Tank Time to work on final paper	Round 1 Presentations due Sunday 11:30 PM Journal #8 – Due Sunday 11:30 PM
16	Monday, May 2	Shark Tank Day 1	Round 2 Presentations due Tuesday 11:30 PM “Self and Team” Evaluation – Due in-class from presenting teams
	Wednesday, May 4	Shark Tank Day 2	“Self and Team” Evaluation – Due in-class from presenting teams Peer review due Sunday 11:30 PM <i>Final Papers</i> Due Friday 5:00 PM
17	Wednesday, May 11	Finals Week	