Graduate Research Orientation and Perspectives
AGRO/HORT/SOIL 505 (4 credits)
Fall 2023 Syllabus

Tuesdays 10:30-11:45 am: in-person Skeen Hall N120 (with hybrid option for off-campus students)
Thursdays 10:30-11:45 am: in-person Skeen Hall N120 (with hybrid option for off-campus students)
Fridays 3:30-4:30 pm: graduate seminar series in GT200

Instructor	Dr. Niall Hanan	**Pronouns**	He/Him
Phone	(575) 646-3335	**Email**	nhanan@nmsu.edu
Office hours	Any time by appointment		

Course Description/Objectives:
Introduction to graduate-level scientific research including (i) Introduction to Graduate School (expectations, procedures, challenges), (ii) Scientific Method (scientific reasoning and hypothesis generation); (iii) Science Communication: structures and strategies for effective oral science communication; (iv) Science communication: structures and strategies for effective written communication/proposal writing, and (iv) Critical thinking, reading and discussion.

Course Outcomes:
Students will gain insight into the nature of scientific research and skills vital for their graduate research program and future careers in science, including critical thinking and hypothesis generation, and the structures and strategies for science communication (written and oral). Students will work independently to draft a proposal for their thesis or dissertation research (or for more advanced students, a new proposal for future research suitable for submission to a funding agency).

Course Materials (Required Reading):
The Big Ratchet: how humanity thrives in the face of natural crisis: A biography of an ingenious species. Ruth Defries, 2014, Basic Books, NY.

Assignments and Grading:
Grading will be based on: (i) attendance and participation in all class meetings (10%); (ii) presentations developing your research proposal (20%); (iii) end of semester written research proposal (25%); (iv) constructive peer-review of classmate proposal sections (15%); (v) participation in discussion for each chapter of the class reading (15%); (vi) peer-evaluations for Friday seminar speakers (15%).

POLICIES

DIVERSITY, EQUITY AND INCLUSION COMMITMENT
I am committed to fostering an inclusive, welcoming and respectful environment for all students, including use of preferred names and pronouns. I support PES, ACES and NMSU commitment to developing and maintaining an inclusive environment and culture for students, faculty and staff that recognizes and embraces diverse backgrounds, cultures, experiences and aspirations.

CLASS ATTENDANCE AND PARTICIPATION
Students are required to attend every class period and the PES Friday Seminars (3:30-4:20). Hybrid in-person and zoom options are planned, allowing for in-person and off-campus participation. Zoom participation is intended primarily for students who are off-campus at Ag. Science Centers or for fieldwork. Logging in to zoom or sitting in a classroom is not the same as participation in class: active participation is required and considered in grades. Do not attend in-person if you are sick, but do notify the instructor as soon as possible if you cannot attend. Unexcused absences, late arrivals and/or early departures will result in grade reduction.

Discrimination and Disability Accommodation

Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act Amendments Act (ADAAA) covers issues relating to disability and accommodations. If a student has questions or needs an accommodation in the classroom (all medical information is treated confidentially), contact:

Jesse Haas, Interim Director
Student Accessibility Services (SAS)
Corbett Center Student Union, Rm. 208
Phone: (575) 646-6840
E-mail: sas@nmsu.edu
Website: http://sas.nmsu.edu/

New Mexico State University, in compliance with applicable laws and in furtherance of its commitment to fostering an environment that welcomes and embraces diversity, does not discriminate on the basis of age, ancestry, color, disability, gender identity, genetic information, national origin, race, religion, retaliation, serious medical condition, sex (including pregnancy), sexual orientation, spousal affiliation, or protected veteran status in its programs and activities, including employment, admissions, and educational programs and activities. Inquiries may be directed to:

Laura Castille, Executive Director
Title IX and Section 504 Coordinator
Office of Institutional Equity
P.O. Box 30001, E. 1130 University Avenue
Las Cruces, NM 88003
575.646.3635; 575-646-7802 (TTY)
equity@nmsu.edu

Title IX prohibits sex harassment, sexual assault, intimate partner violence, stalking and retaliation. For more information on discrimination or Title IX, or to file a complaint contact:

Laura Castille, Executive Director and Title IX Coordinator
Office of Institutional Equity (OIE)
O'Loughlin House, 1130 University Avenue
Phone: (575) 646-3635 E-mail: equity@nmsu.edu
Website: http://equity.nmsu.edu/

Other NMSU Resources:

NMSU Police Department:	(575) 646-3311	www.nmsupolice.com
NMSU Police Victim Services:	(575) 646-3424	
NMSU Counseling Center:	(575) 646-2731	
NMSU Dean of Students:	(575) 646-1722	
For Any On-campus Emergencies:	911	

Academic Resources

NMSU provides students with academic resources such as tutoring, final exam schedules, library and research, and transcript information on the NMSU Current Student webpage.

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Course themes (color codes)

- Intro to Grad School
- Science communication (written)
- Science Communication (oral)
- Scientific methods, hypotheses
- Critical thinking

Week of:	Tuesday	Thursday	Friday
Aug 14	No class	Introductions, course intent, goals and expectations	No seminar
Aug 21	Intro to Grad School: Advice for new Graduate Students	Science Communication: The art and science of story telling	Coordination with 590/694 (Curtis)
Aug 28	Intro to Grad School: NMSU Graduate School protocols and procedures	Science Communication: lightning talks, elevator pitches	
Sep 4	Intro to Grad School: Challenges in science and academia (Jaremka et al., 2020)	**Present your elevator pitch**	
Sep 11	Intro to Grad School: Diversity in science and academia (Ceci, Trisos, Mervis papers)	Scientific Method: Professional profile, literature and biblio	
Sep 18	(Readings: Ceci et al., 2015; Trisos et al., 2021; Mervis 2022)	(Reading: Yannai & Lercher, 2020)	
Sep 25	Research Proposal / Science Communication: Structures of scientific writing (Schimel 2012)	Hypothesis generation & scientific reasoning	
Oct 2	Proposal writing: Goals & expectations	**Present your hypotheses**	
Oct 9	Introduction: Framing your work	Critical reading: Goals & expectations	
Oct 16	Conceptual diagram & methods flow-chart discussions	Prologue & Ch. 1	
Oct 23	(Conceptual diagram preparation)	(Ch. 2-3)	
Oct 30	**Present your conceptual diagram**	Ch. 4-5	
Nov 6	Methods (and methods flow charts)	Ch. 6-7	
Nov 13	Anticipated results & implications	Ch. 8-9	
Nov 20	Thanksgiving	Thanksgiving	Thanksgiving
Nov 27	**Submit draft proposal 4 peer review (11/26)**	Ch. 10	
Dec 4	**Submit full proposal (Tu 12/5)**	Class review/feedback	No seminar

Research Proposal **Submit bullets for peer review**

The Big Ratchet

Science Communication PES Graduate Seminar Attend every Friday and complete on-line or paper evaluation / feedback form

Version: 8/10/2023