

LONG TERM GRANT APPLICATION
Cover Sheet

Amount Requested: \$2035.60_____

Project Information

Hanline, Kami	
Student Participant (Last, First) Residential vs. Commercial Neighborhood Air Quality	
Project Title (10 words or less) Bedford, Dan	
Faculty Mentor Name (last, first) Social and Behavioral Sciences	Mail Code Geography 2904
College (Weber State is the University, NOT college)	Department
This project ___ DOES/_x_ DOES NOT require review by the WSU Institutional Review Board for Human Subjects or the WSU Animal Care and Use Committee.	

Kami Hanline
Student Signature

3-19-18
Date

D. Bedford
Project Mentor Signature

3/19/18
Date Received by Mentor.
Must be 10 business days
before final deadline.

2904
Campus Mail

6186
Phone Ext.

[Signature]
Undergraduate Research Committee Representative

26 March 2018
Date Received by URC Rep.
Must be 5 business days
before final deadline.

[Signature]
Faculty Mentor Department Chair

3-28-18
Date

Please check if attended Research Proposal Workshop:

☒ **Date Workshop attended** January 16, 2018
(Please fill in the date of attendance)

LONG TERM GRANT APPLICATION **Budget Worksheet**

BUDGET ITEM	Department or College Funds	Outside Agency Funds	Personal Funds	Undergrad. Research Funds	GRAND TOTAL
Materials					
Equipment: 10 Purple Air Monitors (See Appendix B)				\$1990.00	\$1990.00
Research Scholarship (max request \$2,500.00)					
Mileage to gather Data (.38 per mile): Five round trips to Layton City (See Appendix B)			\$45.60		\$45.60
GRAND TOTAL			\$45.60	\$1990.00	\$2035.60

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Body of Proposal

Project Description

My research question is: What is the difference in air quality in suburban neighborhoods versus along commercial main roads? The purpose of this research question is to investigate the difference in air quality between suburban neighborhoods and main city roads. I hypothesize that the air quality along main roads is going to be much worse than in residential neighborhoods because of traffic flow. Traffic along commercial main roads is going to be much heavier than in neighborhoods because those roads are traveled more frequently.

The procedures for this research will be quite simple. Purple Air monitors are the best choice to measure air quality for this research project because they are low in cost, but still high quality. They measure smoke, dust and other particulate air pollution. They require a strong Wi-Fi signal and a power outlet. For this project, I will need ten air monitors: five will be installed in residential neighborhoods and five will be installed in a residential sector of a commercial main road. I have identified possible locations: Meadow Way, Sandi Drive, Weaver Lane, Field Stone Way, Henry Street, Highway 89, Mutton Hollow, Fairfield Road, Antelope Drive and Gentile Street. These monitors will be installed along commercial and residential roads in Layton/Kaysville Utah. I will have to talk to and get permission from residents living along these roads to piggyback their Wi-Fi and one of their outdoor power outlets. Purple Air Monitors upload their collected data to an interactive map that is easily accessible to the general public and to me. I will set up the monitors at the beginning of the summer and monitor air quality for the duration of the summer. Once the monitors are in place and if the homeowner gives permission, they can stay there and continue to collect data. For those homeowners who do not want to keep the monitor in place, I will collect the monitors at the end of the study and return them to Weber State University.

Air pollution has been a problem for the last few hundred years. This problem started out simply as smoke from fires and chimneys (Fenger, 2009). However, as the world has industrialized, this problem has grown and is not so simple anymore. The sources of human pollution have grown from space heaters to industry to agriculture to emissions from cars and more (Fenger, 1999; Fenger, 2009). Technological advancements such as industry and agriculture have led to the creation of cities. While cities have many good qualities, they have caused the problem of air pollution to get worse.

“Cities are by nature concentrations of humans, materials and activities. They therefore exhibit both the highest levels of pollution and the largest targets of impact” (Fenger, 1999, p 4877). As humans have gathered together and become concentrated in cities, they have brought their pollution with them. Combustion from cars is the number one source of pollution in cities (Fenger, 1999; Fenger, 2009; Schweitzer & Zhou, 2010). Cities have the highest levels of pollution and they also have the greatest number of people that can be exposed to this pollution because more people are outside on the streets walking, biking, sitting and breathing in pollution from cars (Schweitzer & Zhou, 2010).

Studies have examined this exposure and concentration of pollution in cities but many of the results and data are biased due to few collection sites that are not randomly distributed (Schweitzer & Zhou, 2010). Monitors are usually placed at “critical sites [that] represent micro-environments” (Fenger, 1999, p 4878). If a monitor is placed by a factory, vent or pipe, it will record that pollution and skew the data.

The purpose of my research will be to investigate the difference in air quality between suburban neighborhoods and main city roads. Studies have been performed and papers written about air pollution in cities but this research will be more local and take a look at local patterns of behavior. Traffic and cars are big contributors to urban air pollution and the results of this study should show the ebb and flow of traffic and what that does to air quality along main and residential roads.

Currently, I am enrolled in a research methods course where we are using Purple Air monitors. Through this course I will have experience with the monitors. I will know how to install them and how to interpret the data. As a Geography major, I have taken a World Environmental Issues class where I learned a lot about the problem of air quality. I have also lived in Utah for my entire life. Growing up, everyone always complained about Utah air quality and how terrible it is. This will give me a chance to test the air quality and come up with actual data. I want to see how location plays into air quality.

I will be completing this project mostly on my own. Dr. Dan Bedford is my mentor and I will consult with him at the end of the process when the data has been collected. I will seek his advice when interpreting the data. The project falls along this research continuum:

Dependent _____ X _____ Independent

(Student helping faculty do research) (Student doing own research)

I am a geography major at Weber State University and I plan to use this research for my senior thesis. The end result of this research project will be a scholarly paper and most likely a research poster as well. I plan to present my research at the annual Weber State Undergraduate Research Symposium.

Project Methods & Timeline

May 2018: Install all Purple Air Monitors. During the month of May, I will talk to residents living in commercial and urban neighborhoods in Layton/Kaysville and find good locations for the air monitors. Once the resident agrees, I will install the air monitor at their house and ensure that it is working properly.

May 2018-August 2018: Collect all air quality data from the Purple Air Monitors. After all the air monitors are installed, they will automatically collect data. I will be checking in and studying the data throughout the summer but no real interpretations will be made.

August 2018-December 2018: Synthesize data and write senior thesis. In Fall Semester 2018 I will synthesize the data and begin interpreting it. I will also write my senior thesis and print a research poster, if desired and applicable to the findings

Spring Semester 2019: Present research at the Weber State Undergraduate Research Symposium

Budget Explanation

- Equipment: I will purchase 10 Purple Air monitors. (See Appendix B)
- Travel Expense: I grew up and still live in Layton Utah. However, in April 2018, I am getting married and moving to Roy Utah. I want to install the monitors in Layton/Kaysville because I know the people who live there. It will be easier to find people that are willing to let me use their Wi-Fi and a power outlet in Layton/Kaysville since I have lived here for 20 years. The data will also be more meaningful to me since I will know the people who are breathing in the air that I will be studying. It will take me 5 roundtrips from Roy to Layton/Kaysville to find appropriate locations for the monitors, gain permission from residents and install the monitors. (See Appendix B)

Appendix A- References

- Fenger, J. (2009). Air pollution in the last 50 years-From local to global. *Atmospheric Environment*, 43(1), 13-22.
- Fenger, J. (1999). Urban air quality, *Atmospheric Environment*, 33(29), 4877-4900.
- Schweitzer, L. & Zhou, J. (2010). Neighborhood air quality, respiratory health, and vulnerable populations in compact and sprawled regions. *Journal of the American Planning Association*, 76(3), 363-371.

Appendix B- Budget Explanation

- 10 Purple Air Monitors at \$199 apiece

$$10 \times \$199.00 = \$1990.00$$

- 5 roundtrips to Layton/Kaysville (24 miles) from Roy at \$0.38 per mile

$$5 \times 24 \times \$0.38 \text{ per mile} = \$45.60$$

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Additional Questions

1. What funding have you received from OUR in the past? Where has your previous project been disseminated?

I have not previously received any funding from OUR.

2. Is this project part of a required course? If so, please indicate the support (monetary and in-kind) provided for this project by the academic department.

This project will be done as my Senior Research Project for the Geography department.

3. What additional sources of funding have been solicited? Is your department willing/able to fund any equipment they will be retaining?

I have not solicited any additional sources of funding.

4. Where do you plan to disseminate the results of this project?

I plan on disseminating the results at the WSU undergraduate symposium.

5. If you are requesting a Research Scholarship, please list all significant time commitments (5+ hours per week) that you expect to maintain over the duration of your project including, for example, class and work schedules. N/A

LONG TERM GRANT APPLICATION

Faculty Recommendation Form

Student Name (last, first): **Hanline, Kami**

Project Title: **Residential vs. Commercial Neighborhood Air Quality**

Mentor Directions: After carefully reviewing the proposal and assessing both the viability of this project and the qualifications of the student requesting funding, answer the questions found below. Please expand the sections as necessary (**do not attach separate letter**). If the project involves the use of human subjects or protected animals, be sure the student secures IRB or ACUC approval. If the project receives funding, it is your responsibility to work closely with the student, monitor the ongoing progress of the project and budget, and evaluate the project's results. Failure to do so will jeopardize funding for this project and any future projects.

1. How long and in what capacity have you known this student?

I have known Kami since the start of fall semester 2017, when she took my class GEOG 3050 Weather and Climate. She is currently enrolled in two other classes with me, specifically GEOG 3090 Arctic and Alpine Environments, and GEOG 3600 Quantitative/Research Methods. Kami has distinguished herself as a serious, conscientious student with a strong track record of completing projects.

2. Briefly describe the proposed project. Is this part of a larger research project? Is this part of a course? If so, how is the project apart from the nature and scope of activities normally taken for the course (Please attach a copy of your course syllabus)?

This project aims to investigate variations in air quality between residential and commercial areas, utilizing easily purchased, easily installed air quality monitors (from PurpleAir.org). We are currently working with WSU Facilities Management to install six of these monitors around campus, as part of the course GEOG 3600 Quantitative/Research Methods, so Kami will have some familiarity with the equipment she intends to purchase and install. The data gathered from the air quality monitors should allow Kami to address the question of whether air quality is significantly different between commercial and residential areas.

This work is being undertaken as part of a course. In GEOG 3600 Quantitative/Research Method, currently being taught, all students were required to prepare a draft research grant proposal. A handful of the better ones are being sent forward to the Undergraduate Research Committee for consideration for funding. This proposal is one of them. The work described in the proposal will fulfill requirements for the senior capstone project, undertaken as part of GEOG 4990, which will be taught (by me) in fall 2018. The syllabus for the current semester's GEOG 3600 Quantitative/Research Methods is attached; next semester's syllabus for GEOG 4990 has not yet been written, but I will attach one from a previous semester.

3. Give an assessment of the project's significance to the student's discipline and of the project's educational and/or professional benefit to the student.

This project will provide valuable information about the specifics of air pollution in Layton and Kaysville. Although general patterns have been extensively studied by other researchers, detailed, specific measurements are limited by a sparse sensor network. This project would help to remedy this situation, not only for this particular project, but, ideally, for the long term, as data from each sensor are uploaded to PurpleAir.org's map, available to the public. The project is probably of moderate significance to the discipline, but of great educational significance to the student.

4. Comment on the qualifications of the student to successfully complete this project, both in terms of the project's scope and its time frame.

By the end of this semester, the student will have sufficient expertise to complete the project. The timeline seems realistic, in my opinion.

5. Comment on the justification and appropriateness of the project budget, including the necessity of a Research Scholarship (if requesting one).

The budget is appropriate. The great bulk of the funding request is for ten PurpleAir.org air quality monitors, which are low-cost but quite high-accuracy instruments.

6. Describe your role in the project.

I will serve the role of advisor and overseer. This is fundamentally for Kami's senior thesis research project, and I will have a hands-off, but guiding, role to play.

7. Include anything else that you think will be helpful to the committee in evaluating this application.

Air quality is a serious concern in northern Utah. Regardless of the educational benefit of this project to the student, the benefit in terms of public awareness and information regarding air quality is quite significant. As noted earlier, data from PurpleAir.org sensors are uploaded to the PurpleAir website, and may be viewed by anyone with an internet connection. Two years ago, a student in a similar situation (taking GEOG 3600 Quantitative/Research Methods, planning for the senior thesis class the following semester) was funded by OUR to install 12 PurpleAir.org sensors around Ogden. These sensors are still live and reporting data to the website, providing invaluable public health information. (The research was presented at the Undergraduate Research Symposium, and submitted for publication in ERGO; I anticipate the same would happen with the current project.)

This project ____ DOES ____X____ DOES NOT require review by the WSU Institutional Review Board for Human Subjects or the WSU Animal Care and Use Committee.

D. Bedford

Project Mentor Signature

3/27/18

Date

2904_____
Campus Mail Code

6186_____
Phone Extension

Mac
GEOG 3600
QUANTITATIVE/RESEARCH METHODS IN GEOGRAPHY
Spring 2018

Where: Stewart Library, room 109 (LI 109)

When: Mondays, 1:30 to 4:10 PM

Instructor: Dan Bedford

Office: Honors Center, Stewart Library, room 324A (LI 324A)

Office Hours: MWF 11:00 AM to 12:00 noon, **or by appointment.**

Contact Information:

Phone: 801 626 6186

e-mail: DBEDFORD@weber.edu (this is **definitely** the best way to reach me)

Class Website: Access via your eWeber portal (simply log in at www.weber.edu).

Course outline and goals

This course provides training in basic methods of geographic research. Because geography is a science, and numbers are the language of science, there is a strong emphasis on numeracy, quantitative literacy, and statistical analysis of data. However, because geography is also multi-faceted, other aspects of data analysis are considered, notably qualitative data. This course is therefore more than simply a statistics class.

This course is also designed to prepare students for their senior research project, conducted over the summer and into the fall semester. Again, therefore, it covers issues relevant to research besides statistical analysis. These include understanding the nature of research, writing an effective grant proposal, field equipment and methods, protocols when conducting research on people, and more.

This class is therefore a launch pad. Prepare for lift off.

Learning outcomes

In this class, you will acquire a basic familiarity with:

1. what research actually entails (how to go about identifying a research question, and figuring out how to answer it).
2. collection and analysis of quantitative and qualitative data.
3. field methods for gathering environmental data
4. methods and issues involved with gathering data about people.

Quantitative and Computer Literacy

The principal software package used in this class is Microsoft Excel, because it is widely available, user-friendly, and powerful, especially if you know how to use it. Many students can benefit from developing a stronger grasp of Excel, and only limited familiarity with it is expected going into the class. The same is true for basic numeracy.

Readings

The required text for the class is:

Montello, D., & Sutton, P. (2012). *An Introduction to Scientific Research Methods in Geography and Environmental Studies*. 2nd edition. Sage.

A copy will be available on 2-hour reserve at Stewart Library by the second week of classes, but it is essential that you have your own copy, and **bring it to class each week**. Additional readings and links to videos will be posted to Canvas as the semester progresses.

Further, everyone should sign up to receive AAG SmartBriefs by e-mail. These are quick thumbnail sketches of interesting recent research projects relevant to geography and geographers. Follow the link on Canvas (under Modules- Readings) to do this.

Grades

The best way to learn how to do research is simply to get on and do some. The focus of this class will therefore be two class research projects, one with a human geography focus, the other with a physical geography focus. The graded assignments for this class are mostly pieces that go into building these research projects; exceptions are assignments that relate to preparing you for your individual senior research projects (likely next semester).

Course components will be weighted as follows:

Two research ideas for class projects	5% (total)
Literature reviews for class projects	15% (total)
Contribution to group IRB proposal	10%
Final research report- human geography project	10%
Final research report- physical geography project	10%
Three research ideas for senior seminar	15%
Draft OUR grant proposal	10%
Final research proposal for senior seminar	15%
Overall class participation	10%
Total	100%

Two research ideas for class projects: In class on day 1, students will organize into groups of 3-4 people. Each group will then brainstorm outside of class, to develop one idea for a human geography research project, and one idea for a physical geography project. You must then comment at least once on each group's project ideas.

Literature reviews for class projects: Once one human and one physical project has been settled on, you will have to write a short, 3-4 page review of the existing literature on the subject, one for each project (thus two literature reviews in total).

Contribution to group IRB proposal: One significant step in any project involving people (e.g. surveys, observations, etc.) is to secure approval to work with human research

participants (or human subjects) from WSU's Institutional Review Board. Because this is a group project, everyone will have to make a contribution. Groups will be assigned sections to work on.

Final research reports: Once each project concludes, you will have to write up the research in a report of approximately 4 pages, not counting graphics and references. Each report will cover your research question, its significance, a brief literature review, methods, results, and conclusions/discussion. You will need to include some statistical analysis, and at least some visuals depicting your results (graphs, maps, etc.). Each report will be worth 10% of your grade; however, the physical report, coming later in the semester, will be graded more stringently than the human report (my expectations will be higher). Although the projects will be formulated and executed by the class as a whole, your reports will need to be individual work.

Three research ideas for senior seminar: Identifying a good research project is hard! The more time you spend thinking about and working on this, the better. Consequently, everyone is required to submit ideas for three projects that you could conceivably pursue as your senior research project in the fall. Each idea needs to be reasonably well thought out, and include a brief literature review. The three ideas together should amount to about six pages (roughly two pages per idea).

Draft grant proposal: Everyone in the class will develop a proposal for funding to the Office of Undergraduate Research (OUR). The proposal will outline the research you intend to work on for your senior research seminar in fall 2018. You are strongly encouraged to spend at least some of the summer collecting data, allowing you to spend the fall semester on data analysis and writing up your project. Depending on which type of grant you apply for, you may request up to \$3500 in research funding! Not all projects or proposals will necessarily be suitable for funding—but it is nevertheless a useful exercise to prepare a grant proposal (regardless of what job you get after graduation, you may find yourself having to do this). Strong draft grant proposals, detailing solid, well thought out research projects, will be submitted for consideration for funding. **All students must attend an OUR grant proposal workshop**, dates listed on the schedule and at the OUR website. Students whose projects stand a reasonable chance of being funded must also consult with a representative from the Undergraduate Research Committee at least a week before the final submission deadline. The deadlines have been set such that you will receive your draft version back from me two weeks before the submission deadline, giving you a week to incorporate my feedback into an improved version, meet with the URC representative, and incorporate any feedback that they have, in time to submit a high-quality final proposal by the submission deadline. Your grade is not affected by whether or not you get funded. The only way that the grant proposal affects your grade in this class is through the draft version submitted to me, worth 10% of your grade. However, it is obviously in your best interests to write a high-quality final proposal, as doing so will increase your chances of being funded.

Final research proposal for senior seminar: This will be a more fully developed version of your grant proposal, and will outline your proposed course of research for the senior

seminar in fall 2018. Think of it as the equivalent of a final paper in other classes, approximately 8-10 pages in length (typed, double spaced, 12 point font, 1 inch margins).

Policies regarding written work: The basic policies regarding all written work for this class are as follows:

- *Late policy:* No late work will be accepted, except under the most extreme of extenuating circumstances (life-threatening accident, emergency surgery, death in the family).
- *Recycling bonus:* Use both sides of the paper, or use paper from a recycling bin, and you get one bonus point on your paper. Bonus voided if you reuse work from this class.
- *Plagiarism:* **Plagiarism is taken extremely seriously at WSU in general and my classes in particular.** If you plagiarize in this class, you will be caught, and you will in all likelihood be penalized by failing the entire class (not just the assignment). Don't do it. See the section below on academic honesty.

Class participation: This is a necessarily subjective part of your grade, but there will be plenty of opportunities to be actively involved in the class. Ask questions, raise points, make comments and observations, relate things said in class to your own experiences. **This is your class, too.** Make sure you are actively involved in it.

Extra credit assignments: There will be no extra credit assignments for this class.

Emergency Closure

If for any reason the university is forced to close for an extended period of time, class will continue via e-mail and Canvas. Look for announcements on your Weber e-mail address. **Please check your Weber e-mail address regularly**, or have e-mail forwarded from your Weber address to the address you prefer. Code Purple is a good way to be alerted to campus closures, and you are encouraged to sign up for it.

Other Considerations

I am very aware that many students have work and family commitments outside the classroom. I am willing to accommodate conflicts within reason, but keep in mind that your responsibilities outside class do not excuse you from your responsibilities as a student. If you have any questions about those responsibilities, please check the Student Code, available on the web at <http://documents.weber.edu/ppm/6-22.htm>.

Any student requiring accommodations or services due to a disability must contact Services for Students with Disabilities (SSD) in room 181 of the Student Service Center. SSD can also arrange to provide course materials (including this syllabus) in alternative formats if necessary. The SSD office has a web page at <http://departments.weber.edu/ssd/>

Quick Reference: Important Dates

Two research ideas for class projects	Friday January 19 th 5:00 PM
Literature reviews for class projects	Monday February 5 th , start of class
Contribution to group IRB proposal	Monday February 12 th , start of class
Final research report- human geography project	Monday March 12 th , start of class
Final research report- physical geography project	Monday April 23 rd , start of class
Three research ideas for senior seminar	Monday February 26 th , start of class
Draft OUR grant proposal	Monday March 19 th , start of class
Final research proposal for senior seminar	Monday April 16 th , start of class

Final deadline for OUR grant proposals	Monday April 2 nd , 5:00 PM
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Proposal writing workshop dates	Tuesday January 16 th , 1:00 to 2:00 PM, LI 322
	Thursday March 1 st , 1:00 to 2:00 PM, LI 322
	Wednesday March 14 th , 1:00 to 2:00 PM, LI 109

Plagiarism and Academic Honesty

Plagiarism comes in many shapes and forms, but in simple terms it means copying material from somewhere else and passing it off as your own work, **either intentionally or unintentionally**. It is acceptable to use *a few short* quotations so long as the source is properly attributed **and quotation marks are used**, but papers copied in whole or in part are entirely unacceptable. Failure to use quotation marks, even if only by accident, is still plagiarism. If you are caught submitting copied work, you are guilty of plagiarism and the most likely consequence is failure of the class (not just the assignment).

Do You Need a Minimum Grade In This Class?

If you need a certain minimum grade in this class for **any reason** (graduation requirements, scholarship, athletics, etc.), it is **up to you** to monitor your progress and approach me for help, to ensure you end the semester with the grade that you need. The time to work on this is **early in the semester**, and absolutely **not** after the final exam has been completed. By then, it is far too late.

UW versus E grades: Be aware that earning a grade of UW (Unofficial Withdrawal) can jeopardize your financial aid or other elements of your status as a student (foreign students especially). Official WSU policy on the earning of E grades is: "If the student completed all of the necessary coursework, including the taking of the final exam, but was unsuccessful the appropriate grade is an 'E' with the last day of class entered as the last date of attendance." Thus, earning an E grade instead of a UW requires completion of **all** necessary coursework. You cannot, therefore, simply stop completing coursework, take the final exam, and earn an E. In this situation, a UW would be the correct grade. See <http://www.weber.edu/Records/Grading.html> for a complete description.

Schedule of topics and readings

Below is a tentative lecture and reading schedule. Keep in mind that we may not stick precisely to this schedule, as some subjects may take longer to cover than others.

Readings: M&S is the class textbook by Montello and Sutton; all other readings will be available on Canvas, as noted earlier.

<i>Class meeting date</i>	<i>Topics</i>	<i>Reading</i>
January 8	Course introduction What is scientific geographic research?	M&S ch. 1-2
January 15	Martin Luther King Jr. Day No class OUR Grant Proposal Workshop January 16 Class project research ideas due January 19 (Canvas)	
January 22	Scientific communication: scientific literature, literature reviews, and using the library Discussion and selection of class project ideas	M&S ch. 3 Bedford Cook et al.
January 29	Data collection: overview, issues, and data collection in physical geography Xeriscape research project presentation	M&S ch. 2, 4, and 5 Emery
February 5	Behavioural observations and archival research Human subjects/research participants and the IRB Literature reviews due	M&S ch. 6, 14 Boykoff
February 12	Surveys, interviews and tests Group IRB proposal due	M&S ch. 7 Maibach et al Kahan et al (2) Bedford
February 19	Presidents' Day No class Human geography project field data collection	
February 26	Human geography project data processing and analysis Experimental/non-experimental research design OUR Grant Proposal Workshop March 1 Three research ideas for senior seminar due	M&S ch. 8
March 5	SPRING BREAK- no classes	
March 12	Human geography project conclusions Data display OUR Grant Proposal Workshop March 14 Human geography project report due	M&S ch. 11 Tufte Buckley
March 19	Sampling and statistical analysis Draft grant proposals due	M&S ch. 9-10 RadioLab
March 26	Undergraduate Research Symposium Meet with URC representative this week	
April 2	Sampling and statistical analysis Final OUR grant proposal submission deadline	M&S ch. 9-10
April 9	AAG- no class Physical geography field data collection	
April 16	Physical geography project data processing and analysis Data display, project reliability and validity Senior seminar research proposal due Monday	M&S ch. 11 Tufte Buckley M&S ch. 12
April 23	Physical geography project conclusions Ethics Course conclusions Physical geography project report due	M&S ch. 13, 14 NYT article

RESEARCH SEMINAR

GEOG 4990

Fall 2016

Where: Social Sciences building, room 333 (SS 333)

When: Monday afternoons, 1:30 to 4:10 PM

Instructor: Dan Bedford

Office: Social Sciences building, room 338 (SS 338)

Office Hours: MW 9:20 to 10:20 AM, or by appointment.

Contact Information:

Phone: 801 626 8091

e-mail: DBEDFORD@weber.edu (this is **definitely** the best way to reach me)

Course outline and goals

The purpose of this seminar is to provide geography majors with a 'capstone' experience, in which students draw together the various strands of geography to which they have been exposed thus far, and learn to make sense of the discipline of geography as a whole.

The primary vehicle for this capstone experience is the preparation, writing and presentation of a professional-quality research paper (senior thesis). This paper will be an original body of thought and work, including collecting and analyzing data.

Working on the research paper should also shed light on several additional aspects of the research process and the practical functioning of science in general and the discipline of geography in particular. Some of these additional aspects are listed below:

- The nature of scientific research and the scientific method
- The peer-review process, and publishing in academic journals
- Careers in geography (both academic and non-academic)

The seminar as a whole, through readings, in-class discussions, and individual work on the research paper and presentation, should serve to provide graduating majors with preparation for careers or further education in the discipline of geography, or for any career requiring problem-solving in a systematic, thoughtful scientific manner.

Learning Outcomes

The intended learning outcomes of this class are as follows:

1. Finding, evaluating and utilizing appropriate sources from the scientific literature.
2. Identifying a research question that can be answered scientifically, and which contributes to the body of knowledge.
3. Data collection and analysis using appropriate techniques
4. Drawing sound conclusions on the basis of data
5. Preparing, organizing, writing and presenting a substantial work of original research

Assessment of these learning outcomes will be via the senior thesis and steps leading to its completion.

Readings

There is no text required specifically for this class, although seminar participants will find the reference texts from statistics classes (such as GEOG 4050 Quantitative/Research Methods in Geography, a pre-requisite for this class) extremely useful.

The seminar will also draw on several additional readings accessible via Canvas. The bulk of the reading for this class, however, will be material that each student needs to read as background and preparation for their senior thesis.

Grading

Your grade in the seminar will depend on performance in several different assignments, weighted and explained below:

	<i>% of final score</i>
Working bibliography	5%
Annotations of four sources	10%
Literature review first draft	5%
Literature review second draft	10%
Thesis first draft	5%
Peer review reports	5%
Thesis second draft	10%
Thesis final draft	40%
Class participation	10%
Total	100%

Approximate grading grid: Please note that the following grid is approximate and subject to variability, especially as a result of curving.

90-100%	A
80-89%	B
66-79%	C
52-65%	D
50% or less	E

Plus and minus grades depend on where your score falls within the overall range for the grade; the high end of the range will gain a plus, the low end a minus. For example, a score of 88% is typically a B+, 85% a straight B, and 82% a B-.

Working Bibliography: A preliminary, 15-item list, **in APA format**, of scholarly references that you think you might use in your project. For examples of correct APA format, see the Stewart Library's guide to citing print and electronic sources, available here: <http://libguides.weber.edu/content.php?pid=23426&sid=168509>

Annotations of four sources: Identify four sources from your working bibliography of 15 items. For each of the four sources, use roughly one page (typed, double spaced) to summarize the article, assess its use of evidence and its overall persuasiveness, and explain how it might be useful to your own work. More details are available in the accompanying handout.

Literature review first and second drafts: Literature reviews are often quite tricky to write, but writing improves with practice and feedback. Thus, each student will turn in a first draft of a literature review, for a mere 5% of final grade, and a second draft which is expected to be better than the first draft and **must include substantial attention to feedback** provided on the first draft. Literature reviews should be about 3 pages long.

Peer review reports: To illustrate the nature of the peer review process, and (hopefully) to provide useful feedback, students will critique the first drafts of each other's theses. Students will work with anonymous copies of theses, and will turn in two copies of their review comments, one with and one without names.

First and second drafts of thesis: In order to keep everyone on track, and provide feedback, two drafts of the thesis will be turned in. As with the literature review drafts, successive drafts of the senior thesis must show improvement, and attention to feedback provided on earlier drafts.

Final draft of thesis: This is what you are working towards for the whole semester. Your paper must be 10-15 pages, the majority of which must be **original** research—in other words, your own data gathering and analysis, rather than reviews of other peoples' work. The research paper is worth substantially more than any other assignment. Because two earlier drafts are required, incorporation of feedback from earlier drafts is a factor in the final grade. Final drafts **must** have been taken to the Writing Center, and must be accompanied by a visit slip.

Class participation: The essence of seminars is discussion and participation. You cannot and must not stay quiet in this class. To this end, 10% of your grade in this class will be based on the frequency and quality of your contributions to class discussions and exercises. This is a necessarily subjective part of your grade, so the best thing to do is err on the side of caution: make sure you speak up when you have something to say. Assignments without explicit grade contributions will count towards your participation grade (such as the roundtable discussion of reading, see below).

Roundtable discussion of reading: It is **very important** that each student reads broadly around the topic of their senior thesis. You are highly unlikely to find published research that relates precisely to your topic (which is good—if someone else has already done exactly the same thing as you, why bother reinventing the wheel?). However, you can learn a lot from reading studies conducted on similar or related issues. If you're looking at light pollution in Ogden, for example, what research has been conducted on light pollution elsewhere? To ensure that everyone is keeping up with their reading, at the start of each class after Labour Day, we will go around the class and get a brief summary of what you read related to your thesis in the previous week. Everyone must have read at least one peer reviewed source in the preceding week, and if you are consistently only reporting on one source, you will lose participation points.

Presentations: Each student will have to give several presentations over the semester. These will begin relatively informally, but as the semester progresses, the presentations must become more polished and professional. The final presentation will follow the format of a professional conference, such as the Association of American Geographers' annual meeting, which means they must clearly and concisely outline the research, include appropriate visual aids (maps, graphs, slides, etc.), and will involve a short question-and-answer period afterwards. **All seminar participants must attend all the presentations**, in order to ask questions, add comments and take notes. The length of each presentation will depend on exactly how many students enroll in the class, and make it to the end of the semester.

Extra credit assignments: My policy is not to offer any extra credit assignments.

Late penalties: In fairness to those who turn work in on time, all work that is received late will be penalized at -10% of available points per calendar day late (one week late = -70% of the points for the assignment).

Plagiarism and academic dishonesty: All forms of academic dishonesty, including plagiarism (copying or drawing very heavily from someone else's work, be it published or another student paper), are absolutely unacceptable and will result in disciplinary action. Exact penalties will depend on the specifics of each case, but the most likely penalty will be failure of the class; the strongest penalty could be expulsion from the university.

Electronic submission of assignments (Canvas or e-mail): **Please do not do this, unless explicitly stated otherwise.** Hard copies are required for a grade for almost everything.

Other Considerations

I am very aware that many students have work and family commitments outside the classroom. I am willing to accommodate conflicts within reason, but keep in mind that your responsibilities outside class do not excuse you from your responsibilities as a student. If you have any questions about those responsibilities, including the issue of plagiarism, please check the Student Code, available on the web at <http://documents.weber.edu/ppm/6-22.htm>.

Any student requiring accommodations or services due to a disability must contact Services for Students with Disabilities (SSD) in room 181 of the Student Service Center. SSD can also arrange to provide course materials (including this syllabus) in alternative formats if necessary. The SSD office has a web page at <http://weber.edu/ssd/>

Emergency Closure

If for any reason the university is forced to close for an extended period of time, class will continue via e-mail and Canvas. Look for announcements on your Weber e-mail address. **Please check your Weber e-mail address regularly**, or have e-mail forwarded from your Weber address to the address you prefer. Code Purple is a good way to be alerted to campus closures, and you are encouraged to sign up for it.

Tentative Schedule

This is a not-quite-at-a-glance look at roughly how the semester will progress. Please keep in mind that this is somewhat tentative, and precise details of topics covered may vary a little. Due dates for assignments, however, will not vary.

Reading lists the reading that is to be discussed on the day listed—so you need to read those materials **for that day**. Other reading may be required, depending on concerns and questions from the class. All readings will be available in the Modules section in Canvas.

Senior thesis final draft due Friday December 9. No late theses will be accepted.

<i>Date</i>	<i>Topics</i>	<i>Reading</i>
August 29	Introduction- what did you do on your summer vacation? Literature search techniques (Library 138)	
September 5	No class (Labour Day holiday) Working bibliographies and annotations due via Canvas Tuesday September 6	
September 12	Science and the peer review process Roundtables start: what did you read this week? (Continue every week that class meets.)	Mann & Schmidt (2005)
September 19	Presentations: Your research problem statement and why it matters Literature reviews: how/what/why?	Bedford (2015)
September 26	Presentations: literature reviews Literature review 1st draft due	
October 3	No class- Dan away at a training	
October 10	Life after graduation: what can I do with a geography degree? (Graduate school) Literature review 2nd draft due Presentations workshop: what to do/not to do	Tufte (2003)
October 17	Life after graduation: what can I do with a geography degree? (The workforce)	
October 24	Presentations: Problem statement, methods, results and conclusions Group problem-solving/brainstorming	

	Senior thesis first draft due	
October 31	One-on-one meetings with Dan	
November 7	Writing workshop Peer-review reports due	
November 14	Data analysis workshop (computer lab) Senior thesis second draft due	
November 21	Writing workshop	
November 28	Presentations	
December 5	Presentations	