

ENGL105

Unit Project 1 – Natural Sciences (with Business): SURF Grant Proposal

Genre	Purpose	Audience	Role	Rhetorical Situation
Summer Undergraduate Research Fellowship (SURF) proposal	To persuade the SURF committee to fund your research project based on its “interesting, fresh, and significant” research question, its feasible scope, and appropriateness for your background	Faculty in the natural or health sciences and/or members of SURF multidisciplinary faculty selection committee	Student researcher	Eager to put your science coursework into action, you would like to embark on an extended research project on a topic that interests you.

Scenario

Requesting and obtaining funding for your studies is a vital part of strong scholarship. This unit will introduce you to researching and writing in the natural sciences and in business, integrating natural science scholarship with the process of acquiring funding. One of the most accessible source of funding for undergraduate research is Carolina’s SURF (Summer Undergraduate Research Fellowship) program. As UNC’s Office for Undergraduate Research (OUR) explains:

SURFs are major awards (at least \$3000) to enable undergraduates to engage in research, scholarship or creative performance under the guidance of faculty advisors (and possibly also graduate student mentors) for at least 9 weeks (20 hours/week) during the summer. Applications for the SURFs are considered once a year in the early spring. (<https://our.unc.edu/find-funding/>)

By the end of this unit, you will compose a grant proposal for Carolina’s SURF program, following its submission parameters and appealing to the committee’s specific selection criteria (<https://our.unc.edu/files/2017/09/SURF-Rubric.pdf>). **Please note, the parameters for the in-class assignments are based on SURF’s parameters but have been slightly revised for this class. For all assignments in this unit, please follow the guidelines listed in this prompt below rather than the guidelines listed on the SURF website. I have included those urls for your own future reference, not as a specific guide for these assignments.**

At the completion of this unit, I encourage all of you to actually submit your proposals to the SURF program. SURF’s deadline for the 2018-2019 academic year is Friday, February 1, 2019 at 4:00 p.m. More information on the SURF program can be found here: <https://our.unc.edu/surf/>. If you’d like to discuss revising your project in order to submit your proposal to the SURF committee, I’d be happy to meet with you outside of class.

Feeder 1.1: Annotated Bibliography

For Feeder 1.1 (the first feeder for the first unit project), you will choose a topic in the natural sciences, review the latest research regarding that topic, locate and select scholarly sources, skim them (or their Abstracts), and use them to create an annotated bibliography of scholarly sources to inform you about your topic. This information will allow you to develop a research question, and further research targeted around that research question will allow you to develop a working hypothesis. (Feeder 1.2 will consist of designing an experiment to test this hypothesis.)

Step 1: Choose a topic that you'd like to study. This topic needs to fall within the discipline of the natural sciences: chemistry, biology, anatomy, geology, astronomy, medicine, epidemiology, etc. Think of a problem that needs to be solved or a mystery that needs to be explained or at least an issue that needs to be better understood. You might have to begin rudimentary research on a few different topics to make sure you are comfortable in your commitment to said topic.

In a brief document, state your selected topic, and in few sentences, explain why you chose that topic. Brainstorm at least three questions you have about that topic, questions you hope to answer by researching the existing scholarship. These questions will guide your research or at least give you a starting point. Below that, include a few back-up topics just in case your research doesn't prove fruitful. **In your Sakai dropbox, create a new folder labeled "Unit 1." Upload the document stating your selected topics to your Sakai Unit 1 dropbox by 11:59pm on Sun. Aug. 26. The file name for this document should be "[Your last name]_1.1 Topic." On Mon. Aug. 27, we will visit the UNC Undergraduate Library (UL) to learn about their resources and use their databases to begin researching your topics.**

Step 2: Review the recent scholarly research on your topic until you develop a research question. The point of your research is to familiarize yourself with information on your topic, starting off general and then becoming more specific until you narrow in on a specific question you want to explore. For instance, if your topic is a disease or medical condition, your research question might be: "What is the relationship between disease X and some specific nutrient or chemical?" Research questions are open-ended (NOT "yes-or-no" questions), and they usually ask **what** or **how**.

As you review the research, collect at least six scholarly sources that provide either basic background information on your selected topic or have provided information that led to the development of your research question.

Create an annotated bibliography of your sources. This first draft needs to only include three sources. Begin by just listing your sources according to CSE citation guidelines, as listed in the Tar Heel Writing Guide (THWG). (CSE uses three different formatting options. We will be using Name-Year format.) Each citation should include bibliographic information for each source: title, author, year published, journal title

(if applicable), volume and issue number, page numbers, and URL. Your sources should be listed in alphabetical order.

For more on CSE style, see:

- The UNC library site (make sure to use CSE Name-Year style) at <http://www2.lib.unc.edu/instruct/citations/>
- Or this website at <http://www.scientificstyleandformat.org/Tools/SSF-Citation-Quick-Guide.html>
- You can also try the Citation Wizard, but double-check what it generates for you: http://21cif.com/tools/citation/cse/citeWizard_cse_1.0.html

Below each citation, you will write an annotation, a paragraph of about 150 words that summarizes and evaluates that specific source. Answer some or all of the following questions: How does this source contribute to the current research on this topic? How does this source contribute to your potential research? Does the source seem flawed or biased? Does it admit its own limitations or make suggestions on how its study could have been better? Consider also if and how that source is responding to other scholars and their work. As you compile sources and write your annotations, begin to visualize how these different sources are in a kind of “conversation” with each other.

We will discuss annotated bibliographies in class, but for more information, examples, tips, etc., see the Writing Center’s page on annotated bibliographies: <http://writingcenter.unc.edu/tips-and-tools/annotated-bibliographies/>.

At the top of your annotated bibliography, state your research question.

Upload your annotated bibliography, Draft 1 to your Sakai Unit 1 dropbox by 11:59pm on Tues. Aug. 28. The file name for this document should be “[Your Last Name]_1.1 Draft 1.” We will workshop these in class on Wed. Aug. 29.

Step 3: *Revise and add to your first draft by creating Draft 2 of your annotated bibliography. Draft 2 requires at least 6 sources instead of 3.* If they are useful, keep your first 3 sources, and add 3 new sources. If you’ve realized some of your sources weren’t very useful, you might need to cut some sources and replace them. But you must include at least 6 sources in this draft. **Upload your Annotated Bibliography, Draft 2 to your Sakai Unit 1 dropbox by 11:59pm on Thurs. Aug. 30. The file name for this document should be “[Your Last Name]_1.1 Draft 2.” We will workshop these in class on Fri. Aug. 31.**

Step 4: *Revise and polish Draft 2. Based on your workshop experience, adjust and revise your annotated bibliography to make Draft 3 (the final draft). This final draft of Feeder 1.1 will be due via your Sakai Unit 1 dropbox by 11:59pm on Tues. Sept. 4. The file name for this document should be “[Your Last Name]_1.1 Final Draft.” This draft will be graded and will be worth 5% of your final grade.*

Feeder 1.2: Study Design

Now that you've researched your topic and developed a research question, it's time to develop a hypothesis, a prediction that attempts to answer your research question. For instance, if your research question focuses on a specific disease and its relation to a particular chemical, your hypothesis might be that the introduction of that chemical to a patient will ameliorate that patient's symptoms.

Step 1: Form a hypothesis. In one document, first state how you plan to represent, measure, or otherwise quantify the variable involved. Then, in the same document, clearly state your hypothesis using the method of measurement you've chosen.

Upload this document to your Sakai Unit 1 dropbox by 11:59pm on Thurs. Sept. 6. The file name for this document should be "[Your Last Name]_1.2 Hypothesis." We will workshop these in class on Fri. Sept. 7.

Step 2: Design an experiment to test your hypothesis. Based on the information gleaned from your outside sources, develop a plan for conducting your own original primary research or experiment for answering your research question. (You will not actually be conducting this research. Although your research plan needs to be feasible in terms of logistics, don't stress over whether or not you currently have the time or resources to conduct your experiment, etc. The whole point is to create a research plan to present to the SURF grant committee, requesting the funds and other resources you'd need to actually conduct this research.)

As you begin to draft this document, try to use language and syntax appropriate to a scientific study. State the methods of your study in a manner consistent with the "Methods" section of a scientific lab report. Remember that your suggested experiment should be ethical, justified, transparent, and repeatable. Your study design should also include an explanation of the way you plan to measure or quantify your variable(s), a version of what you wrote when determining your hypothesis.

Upload this document to your Sakai Unit 1 dropbox by 11:59pm on Sun. Sept. 9. The file name for this document should be "[Your Last Name]_1.2 Draft 1." We will workshop these in class on Mon. Sept. 10.

Step 3. Revise your study design and begin completing your SURF grant proposal. Now that you've begun designing your experiment, it's time to begin completing the SURF grant proposal. Revise the first draft of your experiment and use it to complete the following sections of the SURF grant proposal (from <https://our.unc.edu/applying-for-a-surf/#details-0-3>):

- **Project Goal(s) or Aim(s):** Provide a statement of your research question(s) or a description of what you intend to create, invent or discover. Suggested length: 150 words. [This section should articulate your research question and your hypothesis.]

- **Project Background and Significance:** Clearly explain the potential importance of your research project, your performance or creation, or your invention. In addition, explain the theoretical or critical frameworks you will use to guide your research or the development of your performance or creation. *Include appropriate citations as directed in (8) below.* Suggested length: 400 words. [This should be written like an introduction section to a scientific lab paper and should rely on the sources you found for your annotated bibliography.]
- **Methods:** Describe the steps you will take to complete your project and explain why each step is necessary. Methods differ from project to project. They may include conducting laboratory experiments, fielding surveys, interviewing key informants, analyzing critical texts or artifacts, viewing related performances, or traveling to specific field locations or archives. *Include a brief timeline for completing your project during the summer.* While students may continue their projects after the end of the summer, the research funded by the SURF must be completed by the start of the Fall semester. Suggested length: 400 words. [This section will be the revised version of the first draft of your study design.]
- **References:** Provide a list of the references you cited in your proposal. References are not included in the 1200 word limit. You can use whatever citation style is standard in your discipline. [For this unit, we will use CSE Name-Year format.]

Upload this document to your Sakai Unit 1 dropbox by 11:59pm on Tues. Sept. 11. The file name for this document should be “[Your Last Name]_1.2 Draft 2.” We will workshop these in class on Wed. Sept. 12.

Step 4. *Revise this document into a final draft of your study design.* **Upload this document to your Sakai Unit 1 dropbox by 11:59pm on Fri. Sept. 14. The file name for this document should be “[Your Last Name]_1.2 Final Draft.” This draft will be graded and will be worth 5% of your final grade.**

Unit Project: Complete SURF Grant Proposal

You have a clear experiment planned out. Now it's time to complete your grant proposal. Your proposal will need to be accompanied by a cover letter and a resume. Your cover letter should briefly sum up your intended research, its implications, and your qualifications.

Step 1. *Compile all of the information for a resume.* Make a list of every job, outside employment, or internship you've ever had. For each position, write down the name of the employer, that employer's contact information (address, phone number, email address, website), the name and title of your direct supervisor (and if applicable, that person's direct contact information), your job title, duties, responsibilities, and accomplishments, and your starting and end dates and starting and end pay. In addition, make a list of your education (high school, college, special educational achievements), and also make a list of special honors, awards, or affiliations you have. Add a list of any specific skills, training, certifications, or other qualifications you have. Consider even adding a list of general extracurricular activities, a list of volunteer experience or community service, and a list of your hobbies and other interests. (Not all of this information will fit or would even be appropriate to include on a resume, but this document may be useful to use as a reference when completing specific application forms, etc. in the future.) **Upload this document to your Sakai Unit 1 dropbox by 11:59pm on Sun. Sept. 16 The file name for this document should be "[Your Last Name]_UP1 Draft 1."**

Step 2. *Craft a traditional resume.* Using all of the information from the document you created, craft a traditional resume. This resume should include the following sections: a heading with your contact information; a summary or goal statement; your education; your professional experience or employment history; your honors and awards; your affiliations or extracurricular activities; your skills and training, etc. Format the document to fill a single page. (At most, you could do two full pages, but if you printed it out, you would need to print it double-sided so it only uses a single sheet of paper.) Format the document to be reader-friendly, clear, coherent, consistent, and visually engaging. Proofread and double-check all facts and contact info. **Upload this document to your Sakai Unit 1 dropbox by 11:59pm on Tues. Sept. 18. The file name for this document should be "[Your Last Name]_UP1 Draft 2."**

Step 3. *Now that your traditional resume is complete, you will use it to build an online resume using Adobe Spark (<https://spark.adobe.com/sp>).* Your online resume should contain the same information available on your traditional one, although in this online medium, you can have more interesting graphics, images, and hyperlinks; and you can consider including a bit more information (emphasis on only adding a bit more info). Be sure to bookmark the url for your published resume. It will stay the same even as you continue editing and updating your online resume. It's also worth considering using a url-shortening service like tinyurl.com or bitly.com to make your resume url customized and easier to communicate.

Once you have the url for your online resume, you should add that url or link to your contact info that appears on your traditional resume so people have the option of looking at either version, also highlighting your versatility in working in two different modalities.

Somewhere on your online resume, you should have a button or link for online visitors to access a printer-friendly .pdf version of your traditional resume. This means you will need to upload your traditional resume to something like Google docs, make it shareable, and use the url for that document as a link on your online resume. (As you revise your traditional resume, be sure to re-upload it and update the url as it appears on your online resume as needed.)

The bottom of your online resume should also contain a note that states the last time this resume was updated: "This resume was created by [your name] and was last updated on [day of the week], [month date, year]." You are bound by the Honor Code to make this an honest statement as your final revision of this online resume (at least for the purposes of this assignment) must be prior to the assignment deadline. **By 11:59pm on Thurs. Sept. 20, go to your Sakai Unit 1 dropbox, and pclick the blue drop-down arrow labeled "Actions." Click on "Add Web Links (URLs)," and post the url for the published draft of your website. The title for the link you post to Sakai should be "[Your Last Name]_Online Resume."**

Step 4. *Write a cover letter* to the SURF review committee, explaining your intended research (briefly stating your research question, your hypothesis, and a brief summation of your intended experiment), why your research is unique, its larger implications or how it will contribute to the existing scholarship or the world in general, and your qualifications for conducting this research. Remember, this should be formatted as a letter, addressed to the committee and closing with your signature and contact information. This letter should be single-spaced and should fit on a single page. **Upload this document to your Sakai Unit 1 dropbox by 11:59pm on Sun. Sept. 23. The file name for this document should be "[Your Last Name]_UP1 Cover Letter."**

Step 5. *Finish your grant proposal and consolidate all materials.* Your complete SURF grant proposal should include, all in one document, the following contents in this order: your revised cover letter, your revised traditional resume (the contact info in the header should include the url for your revised online resume), and your complete application, which should consist of the following sections, some of which will be revised from earlier in the unit, some of which are new sections for you to compose and complete:

- 1. Project Goal(s) or Aim(s):** Provide a statement of your research question(s) or a description of what you intend to create, invent or discover. Suggested length: 150 words. [This section should articulate your research question and your hypothesis.]

2. **Project Background and Significance:** Clearly explain the potential importance of your research project, your performance or creation, or your invention. In addition, explain the theoretical or critical frameworks you will use to guide your research or the development of your performance or creation. *Include appropriate citations as directed in (8) below.* Suggested length: 400 words. [This should be written like an introduction section to a scientific lab paper and should rely on the sources you found for your annotated bibliography.]
3. **Methods:** Describe the steps you will take to complete your project and explain why each step is necessary. Methods differ from project to project. They may include conducting laboratory experiments, fielding surveys, interviewing key informants, analyzing critical texts or artifacts, viewing related performances, or traveling to specific field locations or archives. *Include a brief timeline for completing your project during the summer.* While students may continue their projects after the end of the summer, the research funded by the SURF must be completed by the start of the Fall semester. Suggested length: 400 words. [This section will be the revised version of the early drafts of your study design.]
4. **Preliminary Work and Experience:** Briefly summarize any preliminary work accomplished for your project and/or the course work and other experience you have had that demonstrates your capacity to complete your project successfully. Suggested length: 150 words.
5. **Final Products and Dissemination Plan:** Indicate what the resulting product of your research will be and how this product will be disseminated or shared with others. Examples of final products include a paper submitted for publication, a conference presentation, a software application, a web site, or a performance or other event. Suggested length: 75 words.
6. **IRB/IACUC statement:** Please indicate whether your proposal requires IRB or IACUC approval. Most research involving contact with human subjects (i.e., interviews or surveys) requires IRB approval. Most research involving animal subjects must be approved by the Institutional Animal Care and Use Committee (IACUC). For more information about IRB requirements, please visit the [IRB guide for students and faculty](#). For more information about research involving animal subjects, please visit the [IACUC webpage](#). This statement is required for all proposals; if your project does not require IRB approval you must state that explicitly.
7. **Word Count:** At the end of section (6), please include a word count of sections (1) through (6). List it as “Total word count: ##”. Sections (1) through (6) must total less than 1200 words.
8. **References:** Provide a list of the references you cited in your proposal. References are not included in the 1200 word limit. You can use whatever citation style is standard in your discipline. [For this unit, we will use CSE Name-Year format.]
9. **Figures and Tables:** Figures and tables are *not* required as part of your written proposal. However, if you choose to include figures or tables, please number them sequentially and refer to them in the text by the appropriate

number (e.g., Figure 1, Figure 2, etc). Place these *after* the references. Do not embed figures and tables in the body of the proposal (i.e. sections 1-5). Do not include more than a combined total of 3 figures and tables. Figures and tables are not included in the word limit.

Upload this document to your Sakai Unit 1 dropbox by 11:59pm on Tues. Sept. 25. The file name for this document should be “[Your Last Name]_UP1 Draft 3.” We will workshop these in class on Web. Sept. 26.

Step 6. Revise your online resume and traditional resume. Revise your cover letter and all of your proposal sections. **Upload this document to your Sakai Unit 1 dropbox by 11:59pm on Wed. Sept. 26. The file name for this document should be “[Your Last Name]_UP1 Final Draft.” This will be graded and will be worth 15% of your final grade.**

Grading

Feeder 1.1 (Annotated Bibliography): 5% of your final grade

Feeder 1.2 (Study Design): 5% of your final grade

Unit Project 1 (Complete SURF Grant Proposal): 15% of your final grade

This Unit, as a whole, will then amount to 25% of your final grade.

See also: “Unit 1 Grading Rubric – Natural Sciences – SURF Grant Proposal” at Sakai>Resources>Unit 1: Natural Sciences (with Business).

Grading Rubric for Feeder 1.1: Annotated Bibliography

Organization & Content: 70 points

- Student has displayed considerable investment in the revision process.
- The document states your research question at the top.
- The research question is an open-ended question that offers new insights, has inherent tension, and is also generally applicable, viable, and appropriate.
- Each source is properly cited in CSE (Name-Year format).
- Each source is annotated and each annotation must answer some or all of the following questions:
 - How does this source contribute to the current research on this topic?
 - How does this source contribute to your potential research?
 - How does this source respond to other scholars and their work?
 - Where does this source fit in terms of the ongoing scholarly “conversation” around your topic?
 - How does the source seem flawed or biased?
 - How does the source admit its own limitations or make suggestions on how its study could have been better?

Style: 20 points

- Employs proper style in terms of passive voice, detached or objective tone
- Employs formal vocabulary
- Free from typographical errors, spelling or grammatical mistakes

Layout & Design: 10 points

- Follows proper CSE formatting (page numbers, etc.)
- Minimum number of appropriate sources listed
- Each source has an annotation

Final grade for Feeder 1.1 will be worth 5% of student's final course grade.

Grading Rubric for Feeder 1.2: Study Design

Organization & Content: 70 points

- Student has displayed considerable investment in the revision process.
- Project Goal(s) or Aim(s): clearly states a viable research question, a viable hypothesis (clearly stating the specific predicted outcome of your experiment), and/or what the student intends to discover
- Project Background and Significance: clearly explains potential importance of your research project and provides sufficient background information for an outside audience to become familiar with the specific topic of study
- Method: steps are chronological, written clearly, in the future tense ("Participants will," etc.); describes participants and materials and includes brief timeline; design is ethical, justified, and repeatable
- References: correct CSE (Name-Year) format; all sources appearing in report appear in CSE list; all sources in CSE list appear in the report

Style: 20 points

- Employs proper style in terms of passive voice, detached or objective tone
- Employs formal vocabulary
- Free from typographical errors, spelling or grammatical mistakes

Layout & Design: 10 points

- Follows proper CSE formatting (page numbers, separate sections with headings, etc.)
- All appropriate sections are marked with word counts; all word count restrictions are followed

Final grade for Feeder 1.2 will be worth 5% of student's final course grade.

Grading Rubric for Unit Project 1: Complete SURF Grant Proposal

Organization & Content: 70 points

- Student has displayed considerable investment in the revision process.
- Project Goal(s) or Aim(s): clearly states a viable research question, a viable hypothesis (clearly stating the specific predicted outcome of your experiment), and/or what the student intends to discover
- Project Background and Significance: clearly explains potential importance of your research project and provides sufficient background information for an outside audience to become familiar with the specific topic of study
- Method: steps are chronological, written clearly, in the future tense ("Participants will," etc.); describes participants and materials and includes brief timeline; design is ethical, justified, and repeatable
- Preliminary Work and Experience: clearly states preliminary work accomplished or prior experience or qualifications
- Final Products and Dissemination Plan: clearly indicates the resulting product of your research and a plan for disseminating said research
- IRB/IACUC statement: indicates whether proposal requires IRB or IACUC approval or, if no approval is required, specifically articulates that fact
- Figures and Tables: any tables and/or figures included are appropriately numbered, labeled, placed, and formatted
- References: correct CSE (Name-Year) format; all sources appearing in report appear in CSE list; all sources in CSE list appear in the report
- Proposal packet includes cover letter and traditional resume; traditional resume contains a link to online resume
- Cover letter indicates researcher's overall goals and qualifications, the larger implications of the research, and the unique nature of the research
- Resumes clearly display student's education, work history, skills, etc.

Style: 20 points

- Employs proper style in terms of passive voice, detached or objective tone
- Employs formal vocabulary
- Free from typographical errors, spelling or grammatical mistakes

Layout & Design: 10 points

- Follows proper CSE formatting (page numbers, separate sections with headings, etc.)
- All appropriate sections are marked with word counts; all word count restrictions are followed
- Resumes follow principles of effective document design
- Online resume is visually engaging and functional
- All required contents are included and presented in the proper order

Final grade for UP1, SURF Grant Proposal, will be worth 15% of student's final course grade.