

# UR GEOLOGY: PROJECT

For INSTRUCTIONS on “How to compile the FINAL PRODUCT” go to page 4

UR Research Title: \_\_\_\_\_

Name: \_\_\_\_\_

Course section ID \_\_\_\_\_

Journal Paper

Oral Presentation

Poster Presentation

Other: \_\_\_\_\_

## GRADER - 1<sup>st</sup> DRAFT

- Note: Share your Draft COPY with everyone else in the class for peer review -

- 1<sup>st</sup> Draft** Submit the following for:  **Oral Presentation:** PPT ready to present plus written Presentation Abstract  
 **Poster Presentation:** Completed quality print large scale poster ready for presentation  
 **Journal Paper:** Ready for pre-submittal with finalized abstract & figures, maps, photos, tables, etc.  
 **Other:** Such as published YouTube® video, a Website or other outcomes approved by the instructor.

<b>1<sup>st</sup> Draft Grading</b> _____ /100	
<b>COMPOSITION &amp; LAYOUT</b> The appearance is neat and orderly and the report is complete. The report shows title, authorship & affiliation, an abstract, introduction, data analysis, discussions, graphic and tables, conclusion and citations in an orderly and coherent form. Font sizes, graphic figure captions and labels are readable. Graphics a large enough to see details.	/16
<b>WRITING, GRAMMAR &amp; STYLE</b> Spelling and grammar are correct. Word repetition and use of first person language is avoided. Appropriate language and terminology is used. Numericals are correctly scripted.	/14
<b>FACTUALITY &amp; CONTENT</b> Statements, assertions and conclusions made are factually correct and are free of uncertainties or content mistakes. Supporting evidence is shown. Research discusses results and draws a definitive conclusion based on the presented research. Graphics/Tables are appropriately explained.	/30
<b>GRAPHICS, ILLUSTRATIONS, TABLES (GIT)</b> GIT show originality/quality design, are relevant and contribute to the presentation. They are of appropriate size, are clear, of high quality and resolution to see detail, and with neutral background. Photograph shows scale to size sample. GIT have correct captions / labels explaining the graphic as well as applicable citations. They are mathematically / scientifically correct	/30
<b>CITATIONS</b> A minimum of 10 appropriately formatted citations are listed and included in the text and/or graphics.	/10

<b>AVG. LIKERT GRADE FROM PEER REVIEWS × 4 = (rounded to the nearest whole number)</b> _____	/60
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Calculated by using the average score from the Likert scales (5+5+5 = 15) given by ALL peer reviewers and multiplying this average by 4 to relate it to a total of 60 points

# UR GEOLOGY: PROJECT - FINAL PROJECT

For INSTRUCTIONS on “How to compile the FINAL PRODUCT” go to page 4

UR Research Title:

Name:

## GRADER - FINAL PROJECT

**FINAL PROJECT**  Oral Presentation  Poster Presentation  Journal Paper  Other

UPLOAD ELECTRONIC COPY to CANVAS or share link to an external site

<b>FINAL GRADING</b> _____ /250	
<p><b>COMPOSITION &amp; LAYOUT</b> (<i>1<sup>st</sup> Draft Grade x 2.5</i>)</p> <p>The appearance is neat and orderly and the report is complete. The report shows title, authorship &amp; affiliation, an abstract, introduction, data analysis, discussions, graphic and tables, conclusion and citations in an orderly and coherent form. Font sizes, graphic figure captions and labels are readable. Graphics a large enough to see details.</p>	/40
Improvement Points Addition (max. 40)	
<p><b>WRITING, GRAMMAR &amp; STYLE</b> (<i>1<sup>st</sup> Draft Grade x 2.5</i>)</p> <p>Spelling and grammar are correct. Word repetition and use of first person language is avoided. Appropriate language and terminology is used. Numericals are correctly scripted.</p>	/35
Improvement Points Addition (max. 35)	
<p><b>FACTUALITY &amp; CONTENT</b> (<i>1<sup>st</sup> Draft Grade x 2.5</i>)</p> <p>Statements, assertions and conclusions made are factually correct and are free of uncertainties or content mistakes. Supporting evidence is shown. Research discusses results and draws a definitive conclusion based on the presented research. Graphics/Tables are appropriately explained.</p>	/75
Improvement Points Addition (max. 75)	
<p><b>GRAPHICS, ILLUSTRATIONS, TABLES (GIT)</b> (<i>1<sup>st</sup> Draft Grade x 2.5</i>)</p> <p>GIT show originality/quality design, are relevant and contribute to the presentation. They are of appropriate size, are clear, of high quality and resolution to see detail, and with neutral background. Photograph shows scale to size sample. GIT have correct captions / labels explaining the graphic as well as applicable citations. They are mathematically / scientifically correct</p>	/75
Improvement Points Addition (max. 75)	
<p><b>CITATIONS</b> (<i>1<sup>st</sup> Draft Grade x 2.5</i>)</p> <p>A minimum 10 appropriately formatted citations are listed and included in the text and/or graphics.</p>	/25
Improvement Points Addition (max. 25)	

\* Improvement Points for each segment are earned on a sliding scale for “Improvements / Revisions” made on the 1<sup>st</sup> Draft submittal.

**ORAL DEFENSE /50**

<p><b>1. PROJECT SUMMARY</b> Summarize your project in your own words without looking at written material and highlight accomplishments</p>	<p style="text-align: center;"><b>For Each Question:</b></p> <p><b>10 pts Pass</b> -Satisfactory answer, confidential sated, without looking at written notes; full grasp of subject matter obvious</p> <p><b>8 pts Small Improvement needed</b> - still Satisfactory , however, small weakness in subject matter and/or some notes used</p> <p><b>6 pts Improvement needed</b> - weakness in subject matter and/or notes used extensively</p> <p><b>4 pts somewhat unsatisfactory</b> - substantial weakness in subject matter and/or notes used extensively</p> <p><b>2 pts unsatisfactory</b> - profound weakness in subject matter; “Idk” answer</p>
<p><b>2. PROJECT FUTURE USE</b> How has this UR projected impacted your career, continuing education, or profession and how will you use it for future endeavors?</p>	
<p><b>3. PROJECT SPECIFIC QUESTION #1</b> <i>Science related question specific to your project probing the understanding of your research!</i> Q: _____</p>	
<p><b>4. PROJECT SPECIFIC QUESTION #2</b> <i>Science related question specific to your project probing the understanding of your research!</i> Q: _____</p>	
<p><b>5. PROJECT SPECIFIC QUESTION #3</b> <i>Science related question specific to your project probing the understanding of your research!</i> Q: _____</p>	

**Project Outline** Outline Summary Table

	PAPER	POSTER	POWERPOINT / VIDEO
Layout	11- or 12-point font, doubled spaced, letter sized pages.	Typical poster size is 36" high x 48" wide. Writing / labels need to be large enough to be readable from 4ft away (24 points and up! Title should be 50+ points)	Writing / labels need to be large enough to be readable when projected (usually 24 points and up)
Title	Title page with Title, Author(s), Date, Institutional affiliation	Banner type header (top) across the whole "landscape" oriented poster. Title largest print. Author(s), Date, Institutional affiliation smaller print	Title slide with Title, Presenter(s) and Author(s), Date, Institutional affiliation. Note: Unless all authors are presenting, usually the presenter is marked as "Presenter and Author" and the other contributors just as "Author(s)"
Abstract	A quarter- to a half- page inserted into the document BEFORE the Introduction.	Placed on Poster. In addition, submitted as an additional stand-alone document showing Title, Author(s), Institutional affiliation(s), date and abstract to be printed in Conference proceedings.	Include in the actual presentation as ONE slide showing Title, Author(s), Institutional affiliation(s), date and abstract to be printed in Conference proceedings.
Main Body	Make sure to include subheadings, at minimum Introduction, Lab or Field Work, Discussion, Conclusion, References.	A minimum of the subheadings: Introduction, Lab or Field Work, Discussion, Conclusion, References presented with graphics / tables in 3 or 4 column style	A minimum of the subheading: Introduction, Lab or Field Work, Discussion, Conclusion, References can be expanded over several sides.
Graphics / Figures/ Tables	Placed with captions as close as possible to the text addressing the figure	Placed with captions as close as possible to the text addressing the figure within a column. Sometimes graphics expand over multiple columns to make them easier to read.	Placed with captions often as a stand-alone slide. Can be animated, especially if the graphical presentation is more complex.
Equations			
Discussion	Explain how interpretations are derived. Do NOT reiterate procedures (you did this under the Lab/Fieldwork section). Basically what does it mean (On a graph, how are x and y related)? Here you also discuss possible drawback and problems and highlight discoveries!		
Conclusions	Do NOT reiterate the discussion text. Instead focus on the question: What does it all mean? What is the "outcome" of all your labors? Can you conclusively support or deny the answer to your research question?		
References	Placed at the end of the document. Needs to be correctly formatted.	Placed as a smaller print addendum at the end of the poster. Either in the lower right hand corner or sprawled across the bottom. Needs to be correctly formatted.	Placed at the end of the slideshow. Needs to be correctly formatted. Can be smaller print.
Acknowledgments	Make honorable mention of persons or institutions that helped with your project, e.g. lab coordinators, funding sponsors, mom, dad, etc.. Do NOT include co-author(s).		

The majority of students select a **Poster Presentation** to showcase their research. We have the ability to print posters in our Earth Science department at MSU Denver FREE of charge (contact our Lab Coordinator). Standard Size is 48" w x 36" h. You can download a Template at <https://college.earthscienceeducation.net/UR/URPosterPresentationsTemplate-36x48.pptx>. Additional Templates and instructions are available from <https://www.posterpresentations.com/free-poster-templates.html>. Instructional videos on how to craft science research posters are available at <https://youtu.be/m02leV4gxE> and <https://youtu.be/WnholbfoM>

For Poster Printing your final copy should be exported as a high quality PDF file which can also be uploaded to CANVAS.

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Abstract	<p>This is a quick and concise summary of your research focusing on the results. Abstracts are often submitted for formal presentations and are published. Abstracts are written last, after compilation of your final results. Maximal two paragraphs.</p>
Body: Materials & Methods	<p>OBJECTIVE: document all specialized materials and general procedures, so that another individual may use some or all of the methods in another study or judge the scientific merit of your work.</p> <p>AVOID a step by step description of everything you did, neither describe a set of instructions.          AVOID describing commonly found supplies such as test tubes, pipet tips, beakers, etc., or standard lab equipment such as centrifuges, spectrophotometers, pipettors, etc.          AVOID listing manufacturers or suppliers of any specific type of equipment, apparatus, or chemical unless critical to the success of the method.          AVOID all explanatory information and background - save for discussion.          AVOID information irrelevant to third parties, such as what color ice bucket you used, or which individual logged in the data.</p> <p>DO include specialized chemicals, materials, or any equipment or supplies that are not commonly found in laboratories.          DO refer to chemical solutions by name and describe completely, including concentrations of all reagents, and pH.          DO describe the methodology (not details of each procedure that employed the same methodology).          DO generalize - report how procedures were done, not how they were specifically performed on a particular day. Think about what would be relevant to an investigator at another institution, working on his/her own project.</p>
Body: Results	<p>OBJECTIVE: present and illustrate your findings. Make this section a completely objective report of the results, and save all interpretation for the conclusion.</p> <p>DO illustrate your results with figures and tables. Analyze your data. Develop figures first, then write results according to what is presented in your figure.          DO describe each of your results, pointing the reader to observations that are most relevant.          DO provide context, such as addressing a question by making a particular observation.          DO describe results of control experiments and include observations that are not presented in a formal figure or table, if appropriate.</p> <p>AVOID discussing or interpreting your results, reporting background information, or attempting to explain anything.          AVOID including raw data or intermediate calculations.          AVOID presenting same data more than once.          AVOID repetition of information in text and figures. Text should complement any figures.</p>
Discussion / Conclusion	<p>OBJECTIVE: Interpretation of results and support for all of your conclusions, using ascertained experimental or observational evidence. The significance of findings should be clearly described.</p> <p>DO explain a phenomenon by describing mechanisms and/or supporting evidence that may account for the observation.          DO explain why the outcome of the research may differ from your initial hypothesis.          DO try to offer alternative explanations if reasonable alternatives exist.          DO refer to any previous graphs, figures, and/or tables.</p> <p>AVOID rehashing results. You should interpret the results.          AVOID simple statements that the data agreed with expectations without any further explanation.          AVOID the “inconclusive” statement. Rather imply that a decision can not be made with confidence based on detailed reasoning.</p>

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- Equations & Computations
- Equations should contain explanation of symbols used.
  - A reader should be able to follow where your values or numbers come from. Indicate accordingly.
  - WRITE DOWN UNITS!!!!
  - Show equations used before indicating any computation

Acceptable Example:  $F = m \times a = 0.034\text{kg} \times 9.8\text{m/s}^2 = 0.33\text{kgm/s}^2$

where  $m$  is mass of the object in kg as determined with a triple beam balance and  $a$  is the gravitational acceleration.  $F$  indicates force expressed in  $\text{kgm/s}^2$  or  $N$  (Newtons).

Unacceptable example: The answer is 0.33. This is obtained by multiplying gravity by 0.034.

Figures Each figure must be sufficiently complete that it could stand on its own, separate from text.

DO number and caption figures consecutively and refer to them accordingly within your text. Captions go BELOW the figure.

DO provide a short description of your figure within the caption.

DO place your figures appropriately, closest to their mention in the text.

DO use appropriate citations for figures that are NOT your own. If you use a figure that has been modified by you, the phrase "modified after...." is most appropriate. Photos should show the name of the photographer.

DO make sure figures are legible and reproduce well. Print can be smaller than text, with an 8pt size minimum.

AVOID cluttering of figures with too much detail. Simplify if necessary.

AVOID moire patterns in photos, a nuisance in copied pictures.

#### GRAPHS

***Understand graphs: Bar graphs and/or line graphs are used when plotting nominal vs. numeric data.***

***Scatter plot graphs are used when plotting numeric vs. numeric data.***

DO make sure that the graph axis are appropriately labeled and scaled. Axis should have titles as well as scalar units.

DO use electronic means to generated graphs. Hand drawn graphs are no longer acceptable.

Footnotes NONE! If it is NOT important enough to go into the main body of your text, it is NOT important enough to be included in your paper.

Format Depends on Project Presentation

AVOID first person expressions such as "I", "we", "our". This is a scientific paper. Use third person.

AVOID placing a heading at the bottom of a page with the following text on the next page

AVOID dividing tables or figures - confine each figure/table to a single page

AVOID informal wording, don't address the reader directly, and don't use jargon, slang terms, or superlatives

AVOID use of superfluous pictures - include only those figures necessary to presenting results AND discussed in your text!

DO use normal prose, active voice and third party language

DO use paragraphs to separate each important point

DO present your points in logical order. A MUST when explaining computations / mathematical operations.

DO use present tense to report well accepted facts - for example, 'Pyrite is a sulfide mineral'

DO use past tense to describe specific results - for example, 'When acid was applied, the specimen effervesced'

- Introduction      Maximal two pages
- Describe significance of the assignment in a broad context.
  - Provide a rationale stating specific hypothesis(es) or objective(s), as well as your selection criteria. State the hypothesis/objective precisely - do not oversimplify.
  - Very, very briefly describe the experimental design and how it accomplished the stated objectives.

Plagiarism      I do not believe that most students intentionally plagiarize. If they do it becomes rapidly obvious to me. Most plagiarism results most likely from ignorance. However, MSUD policy now requires that EVERY case of plagiarism to be reported to the judicial affairs office and a students file will be tagged. Therefore, **MAKE SURE YOU UNDERSTAND PLAGIARISM AND CITATION REQUIREMENTS. You have been warned!**

Tables      Each table must be sufficiently complete that it could stand on its own, separate from text.

**Only HORIZONTAL lines are allowed in tables. Do NOT use any VERTICAL lines.**

DO consecutively number and caption tables and refer to them accordingly within your text. Captions go ABOVE the table.  
DO provide a short description of your table within the caption.  
DO place your tables appropriately, closest to their mention in the text.  
DO make sure tables are legible and reproduce well. Print can be smaller than text, with an 8pt size minimum.  
DO appropriately label columns. Do NOT forget units for numeric values.

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AVOID splitting tables across pages.

**For ALL assignments in GEL4970 use a citation's database:**

ZOTERO citations  
database

ZOTERO is a citations database that incorporates  
itself into Word and your Browser.

Free open source software available at  
<https://www.zotero.org/>

*Note: You may use a different citations database, if desired. But you MUST use a citations database!*

NOTE: After downloading and installing ZOTERO, take an hour or two to become familiar with the operation of the software. One of your first tasks will be to set the citation style to the United States Geologies Survey (USGS) format in ZOTERO. The USGS citation system will be required for this course and your final product.

**Loading the USGS citation format into ZOTERO:** Once Zotero Standalone is installed, click on "Preferences" under the Edit tab. Once there click on "Cite" and go to the "Styles" tab. Click on the "Get additional styles..." below the Styles Manger Box. When the Zotero Styles Repository Window opens, click on the "geology" button within the "Fields" section. A list of geology journals should now appear. Scroll down to the U.S.Geological Survey and click on it. The U.S.G.S style will now be part of your Zotero system and you can set your citations to be formatted accordingly in Zotero.

**General Writing Instruction Summary:**

- Use professional language, which means AVOID first person expressions such as "I", "we", "our". Use normal prose, active voice and third party language. Do NOT use informal wording, contractions, jargon, slang terms, or superlatives. Exclude similes/metaphors (and humor!)
  - Use present tense to report well accepted facts, e.g. 'Pyrite is a sulfide mineral'. Use past tense to describe specific results, e.g. 'When acid was applied, the specimen effervesced'
  - Be quantitative wherever relevant (stats, numbers etc.).
- Subscript & Superscript      Use appropriate subscript and superscript, especially when it comes to chemical formulas and mathematical units..  
Acceptable examples:  $2.9 \text{ g/cm}^3$ ,  $\text{H}_2\text{O}$ ,  $\text{PO}_{43-}$ ,  $a_g=9.8\text{m/s}^2$   
Unacceptable examples:  $2.9 \text{ g/cm}3$ ,  $\text{H}2\text{O}$ ,  $\text{PO}4 \text{ 3-}$ ,  $ag=9.8\text{m/s}^2$
- Use precise concrete language, no ambiguity e.g. 'correlated'  $\neq$  'related'. Use simple language – no unnecessary "frills" (distractions). Pay attention to sentence structure and grammar



## GRADING and NOTATIONS

### Language

The following list is an example of common faults in language usage and attribution.

Errors / Mistakes / Faults	Examples with margin <i>Fault Counts &amp; Codes</i>
Spelling: incl. capitalization errors & spacing	The mineral <u>florite</u> has a <u>mohs</u> hardness of four.   Nicolas Steno <u>_</u> was trained in the classical texts on science.
Grammar: incl. punctuation, superfluous words, transpositions	Isometric crystals are also isotropic <u>Here light propagates</u> at the same speed.    Rocks are composed of many <u>many</u> <u>minerals mixed.</u> )
Style: incl. paragraph, repetitive expressions / words, erroneous expression / words, sub- or superscription, unprofessional style, word insertion	<i>Para.</i> ... in the geologic sciences. ¶ Near the end of the 19 <sup>th</sup> a new theory ...    <i>rep</i> ... is a <u>light colored</u> mineral. These <u>light colored</u> minerals are often <u>light</u> ...   Stalactites hang from the <u>sealing?</u> of a limestone cave.   <i>sup</i> The density of quartz is 2.65 g/cm <sup>3</sup> .    I <u>was</u> investigating the outcrop with <u>my</u> group.   Sodium sulfate forms a chalky, <u>incoherent</u> precipitate. <i>amorphous?</i> ^
Sentence: incl. grammar, run-on, strings of nouns	The density of gold is greater <u>then?</u> the density of silver.   Pyrite has a symmetrical crystal <u>structure</u> , <u>it</u> is cubic.    <u>Skarn mineral zonation?</u> is apparent in the sample.

### Content

Errors in content are spelled out. Severe infractions may count for multiple errors.

Errors / Mistakes / Faults	Examples with margin <i>Fault Counter &amp; Codes</i>
Unclear / erroneous statements	<i>unclear, units?</i> <u>Mohs hardness of the mineral in question is 16.5.</u>
False / nonsense	<i>Nonsense</i> <del>Glaciation cause severe metamorphism of the region</del>