

UR GEOLOGY: Research Question

UR Research Title:

Name:

Course section ID

- /20 **OVERALL COMPOSITION & LAYOUT - one or multiple point deduction per infraction**
The appearance is neat and orderly. The paper is typed and graphics and data are electronically prepared and analyzed. Subscripts and superscripts are appropriately used and any equations are explained. The paper contains title and header and a minimum of 3 paragraphs which include Your Research Question, Background / Explanation of the Research Question, Anticipated needs for answering the Research Question, and an accurately formatted Reference Page!
- /10 **OVERALL WRITING & GRAMMAR - one point deduction per infraction**
Spelling and grammar are correct. Word repetition and use of first person language is avoided. Statements are factually correct. Appropriate and complete language becoming to a college level report is used.
- /5 **RESEARCH TOPIC: INTERESTING - one or multiple point deduction per infraction**
On a scale of 1 - 5, how interesting is the research topic and how much does it contribute to the understanding of the discipline. Range: 5 - High Interest, Top Quality 1- Low interest, poor
- /5 **RESEARCH QUESTION: CLEAR & CONCISE - one or multiple point deduction per infraction**
The Research Question itself is specific that the reader can easily understand the purpose without additional explanation. The Research Question itself is expressed in the fewest possible words using normal prose, active voice and third party language. Informal wording, contractions, jargon, slang terms, or superlatives are avoided.
- /5 **RESEARCH QUESTION: FOCUSED - one or multiple point deduction per infraction**
The Research Question itself is narrow enough to be answered thoroughly in the space the writing and research task allows.
- /5 **RESEARCH QUESTION: COMPLEXITY - one or multiple point deduction per infraction**
The Research Question itself is not answerable with a simple "yes" or "no," but rather requires synthesis and analysis of ideas and sources prior to composition of an answer.
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WRITING A RESEARCH QUESTION

A RESEARCH QUESTION is *the* question around which you center your research, It needs to be well written and defined. It needs to be

- **CLEAR:** it provides enough specifics that one's audience can easily understand its purpose without needing additional explanation.

Example: **Unclear:** How should fracking sites address the harm they cause?

Clear: What action should fracking sites in Northern Colorado take to protect the public against methane leakage during and after the process?

The unclear version of this question doesn't specify which sites or suggest what kind of harm the sites might be causing. It also assumes that this "harm" is proven and/or accepted. The clearer version specifies sites (Northern Colorado), the type of potential harm (methane outgassing), and who may be experiencing that harm (public). A strong research question should never leave room for ambiguity or interpretation.

- **FOCUSED:** it is narrow enough that it can be answered thoroughly in the space the writing and research task allows.

Example: **Unfocused:** What is the effect on the environment from mining?

Focused: What is the most significant effect of uranium mining on downstream riparian systems in Colorado?

The unfocused research question is so broad that it couldn't be adequately answered in a book-length piece, let alone a college undergraduate research project. The focused version narrows down to a specific mining activity (Uranium mining), a specific place (downstream from U mining sites in CO), and a specific environmental system (riparian). It also requires the writer to take a stance on which effect has the greatest impact on the affected river system. When in doubt, make a research question as narrow and focused as possible.

- **CONCISE:** it is expressed in the fewest possible words. Use normal prose, active voice and third party language. Do NOT use informal wording, contractions, jargon, slang terms, or superlatives.

- **COMPLEX:** it is not answerable with a simple "yes" or "no," but rather requires synthesis and analysis of ideas and sources prior to composition of an answer.

Example: **Too simple:** What are current volcanic eruptions in the U.S.?

Appropriately Complex: What main technologies are deployed around active west coast volcanoes in the United States to help communities predict future or impending eruptions?

The simple version of this question can be looked up online and answered in a few factual sentences; it leaves no room for analysis. The more complex version is thought provoking and requires both significant investigation and evaluation from the writer. As a general rule of thumb, if a quick Google search can answer a research question, it's likely not an appropriate research question.

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/
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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 Geologic 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 Manager 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.

Research Question Outline

Use a 12 or 11 point standard font (Times, Arial, Helvetica), double spaced. Use letter size paper with 1 inch margins, single sided. Place header on each page. Use HEADINGS!

- TITLE PAGE: Full Title; Your Name; Course ID, Instructor, Date
- HEADER on EACH page (excluding Title Page): Abbreviated Title; Your Name; Course ID, Page number
- Body: Use Headings! Paragraphs are to consist of a minimum of 3 sentences. Use citations!
 - Address the following:
 - Your Research Question**
 - Background / Explanation of Research Question
 - Anticipated needs for answering the Research Question
- The last page in your Research Question Paper should be an accurately formatted Reference Page! Cited literature or web resources should be in alphabetical order, sorted by first author.
- SUBMIT COMPLETED PAPER THROUGH THE CANVAS COURSE PORTAL IN PDF FORMAT

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 g/cm^3 , H_2O , PO_4^{3-} , $a_g=9.8\text{m/s}^2$
- Unacceptable examples: $2.9 \text{ g/cm}3$, $\text{H}2\text{O}$, $\text{PO}4 \text{ } 3-$, $a_g=9.8\text{m/s}^2$
- 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 & Codes</i>
Spelling: incl. capitalization errors & spacing	The mineral <u>florite</u> has a <u>mohs</u> hardness of four. Nicolas Steno_ was trained in the classical texts on science.
Grammar: incl. punctuation, superfluous words, transpositions	Isometric crystals are also isotropic Here light propagates at the same speed. Rocks are composed of many <u>many</u> minerals mixed.
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 th 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 ³ . I was <u>investigating</u> the outcrop with <u>my group</u> . 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> , it 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 & 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> Glaciation cause severe metamorphism of the region