WVU SURE 2020 Research Experience
Instructions for Assignments

Assignments consist of each participant's original ideas and work. Participants are not allowed to collaborate on assignments (e.g., reflection, abstract, project, or poster), although, participants may have others review their writings (e.g., abstract) to check spelling, grammar, and readability.

Instructions for Writing Reflections: Academic reflections should lead learners to a higher level of abstract thinking, greater ability to synthesize ideas, and an increase in comprehension of the material. Academic reflections are not merely descriptive summaries of what you have read or heard. A written reflection should accomplish two goals: 1) demonstrate the writer's understanding of the material, and 2) make direct connections between the content and the writer's personal experiences or research.

Reflection: Planned Use of Hypothetical Enrichment Funds (assume $2,500 of enrichment is available)

The reflection on planned use of hypothetical enrichment funds is an opportunity for participants to think about the complicated world of research funding. The reflection is based upon a hypothetical situation in which each undergraduate researcher has access to additional funds, on a competitive, case-by-case basis. The goal is to prompt participants to think about how research can extend beyond the laboratory, and to become active in pursing both opportunities (conferences, publication, new equipment, workshops, additional trainings, or access to instrumentation, etc.) and funding. Your reflection should demonstrate that you understand your research and why your research would be of interest to a funding entity (e.g., Why is your research of importance to society in general? Why should the average tax payer care about funding your research? What are the potential long-term benefits of your research to society?). In addition, your reflection should justify why enrichment funding is needed and be very specific about it (e.g., access to specific type of instrumentation available at NIST is needed to move the project forward because….).

Consider the following questions: If you could apply for enrichment funding of $2,500 to further your SURE research, how would you spend it and how would you justify this expenditure? Would it be for equipment, conference attendance, instrument time, access to shared instrumentation at WVU, access to instrumentation at National facilities, more lab workers, or something else (e.g., salary funding for grant writing) and how much would it cost? How would use of these funds better or further your SURE research? These should shape into a cohesive reflection on a hypothetical plan of action for requesting the additional money. It would be helpful to have a discussion with your SURE research mentor.

Find prices and provide a reasonable, projected budget for your proposed expenditures in tabular form. How would you justify the expenditures in your budget? Provide a budget justification. In a budget justification, you need to provide details for the specific costs you propose. For instance, if proposing to attend a conference, you need to find and report valid, non-approximated costs for the conference registration fee, lodging, meals & incidental expenses (i.e., M&IE or per diem), and travel. For lodging and M&IE, go to the U.S. General Services Administration (GSA) website (http://www.gsa.gov/portal/content/104877) to find these rates for your destination city. For M&IE, you can request the full rate for each full day at the conference, but only 75% of the rate for days that you travel to and from the conference. For lodging, take the typical lodging cost from the GSA website and multiply it by the number of nights. Also, look up the typical cost of roundtrip airfare. If renting a car, find the daily rental rate, multiply by the number of rental days and factor in the cost

of gas. If driving using your own Privately Owned Vehicle, find the roundtrip mileage (using MapQuest or Google Maps) and multiply by the mileage rate found from the GSA website ($0.575/mile as of Jan. 1, 2020). You cannot request both mileage and gas reimbursement for a Privately Owned Vehicle. The reflection itself should be one page, single-spaced (~300-500 words) with at least one additional page, for your budget and budget justification (i.e., short explanation for each expense and where you obtained the cost and/or why you need the #units of each item requested). Due June 19th before midnight.

Example Projected Budget - For attendance and oral presentation at the American Chemical Society (ACS) National Meeting in San Francisco, CA on August 16-20, 2020 (https://www.acs.org/content/acs/en/meetings/national-meeting.html). The budget justification would include more details as to the source of these prices and more description of the costs (i.e., the registration fee is for an undergraduate student/member/affiliate, the lodging & M&IE were obtained from the GSA website for destination city of San Francisco, CA, mileage to/from PIT airport was obtained from MapQuest, etc.)

Example Budget

Budget Item	Cost/unit x units	Extended Cost
1: Conference Registration	$125	$125.00
2: 3-night stay at hotel: Max lodging (August 16, 17 and 18, 2020)	$302/night x 3 nights	$906.00
3: Roundtrip Flight: Pittsburgh, PA-San Francisco, CA	$298	$298.00
4: M&IE (Meals and Incidental Expenses)	$76/full day x 2 days	$152.00
	$57/travel day x 2 days	$114.00
5: PIT Airport Parking – Extended Lot	$8/day x 4 days	$32.00
6: Mileage to/from airport in personal car from WVU to PIT Airport.	158 miles x $0.575/mile	$90.85
Projected Total Cost of Attendance		**$1,717.85**

Example Budget Justification

Conference Registration: Full conference registration for undergraduate student members of the American Chemical Society is $125 as found on the ACS National Meeting website.

Lodging: Lodging for three nights enabling 2.5-3 full days of conference participation is requested. The standard lodging rate for San Francisco, CA in August 2020 of $302 per night was obtained from the GSA website (https://www.gsa.gov/travel/plan-book/per-diem-rates).

Flight: The costs associated with a roundtrip flight from Pittsburgh, PA to San Francisco, CA were approximated from flight costs found on Expedia.

Meals and Incidental Expenses: M&IE per day for San Diego, CA were obtained from the GSA website at $76 per each day of the conference and $57 (75%) for each travel day.

Parking: Parking in the Extended Economy Parking lot at the Pittsburgh Airport is $8/day as obtained from the Pittsburgh Airport Parking website at: http://www.flypittsburgh.com/parking-transport/parking-transport-parking

Mileage: Roundtrip mileage of 158 miles between West Virginia University (Morgantown, West Virginia) and the Pittsburgh International Airport was approximated from mileage obtained from MapQuest. The roundtrip mileage was multiplied by the Privately Owned Vehicle rate of $0.575 as obtained from the GSA website.

NOTE: Free shuttles are available for transportation while in San Francisco and between the hotel and the conference and the hotel and the airport.

Reflection Grading Rubric:

Letter Grade	Criteria
A (90-100%)	Assignment is complete, well-organized, well-written, and submitted by due date.
B (80-89%)	Assignment is late, partially complete, does not fully address the reflection criteria, and/or does not obey the word limitations.
C (70-79%)	Assignment is late, incomplete, does not fully address the above reflection criteria, and/or does not obey word limitations. Lack of effort is obvious.
D (60-69%)	Assignment is substantially incomplete and constructed with no effort.
F (0-59%)	Assignment is not submitted or is submitted more than 48 hours past the due date.

Project: Parts 1-3

Part 1: The first part, an abstract on your summer research project, must be 150-175 words. Participant's first draft must be posted by July 7, 2020 within an eCampus discussion. After the 7th, you must comment and provide constructive feedback on eight (8) of your peers' abstracts (by July 9). Constructive feedback may include feedback on spelling, grammar, readability, clarity and coherence as well as inclusion of abstract components (e.g. motivation/impact, approach, results, and conclusions). Feedback should be specific rather than general to aid the writer in improving the abstract. Your revised abstract, incorporating feedback from peers and the faculty research mentor, must be posted by midnight on July 10, 2020. Parts 2 and 3 of your project are due this same day. These should be submitted on eCampus.

There will be a link for "Completed Abstracts," and a separate one for "Query Letter and Research Publication/Conference Name." The goal is for participants to be able to identify a proper and authentic scientific publication and/or conference while gaining experience in writing abstracts. It is very important that the abstract follows the formatting of the example provided below, as it will be published in the brochure for the Virtual Summer Undergraduate Research Symposium 2020. Once your abstract has been finalized, your teaching assistant will send you a link for submission of your abstract for inclusion in the symposium brochure.

Abstract Preparation:[1]

The **abstract title** (4-13 words) should be grammatically correct, accurate, and convey maximum information. Keywords (specific rather than general e.g. "copper-zinc alloy" rather than "alloy") should be used to facilitate an online title search. In addition, because the Symposium is open to parents and to members of the general public, you should attempt to use title words that can be comprehended by the general public (maybe, your mom or dad). Use your title to attract people to your poster. Don't have a technical title that turns people away. Title should be centered, only first letter capitalized and use Times New Roman 14-point font and bold.

In **author** (first name, middle initial and last name) **byline**, include ALL authors (including your faculty research mentor) who made substantial contributions to the research. Do not include titles (e.g., Dr., Prof., or Ph.D.) before or after author names. Author bylined should be centered, Times New Roman 12-point font and normal (not bold or italics).

The **author affiliation** is the institution at which the research was conducted (e.g., C. Eugene Bennett Department of Chemistry, West Virginia University, Morgantown, WV 26506-6045). Building name/number and street address are not included. Author affiliation should be centered, Times New Roman 12-point font and italicized.

In your **abstract (150-175 words)**, include the following:

- problem statement or purpose of research (motivation/impact & question addressed/hypothesis tested)
- theoretical or experimental plan used (approach)
- safety information (if applicable)
- summary of principal findings/results (include numbers, e.g., p=0.02)
- major conclusions

Abstract should be a self-contained, single paragraph (discipline dependent) statement that allows readers to determine the nature and scope of your research work (i.e. whether the research presented is of interest). Do NOT include references in your abstract. Also, do NOT include figures or tables of information in your abstract, except in the case of organic chemistry abstracts, which may include reaction schemes (as necessary). The abstract should be Times New Roman 12-point font and normal (not bold or italic).

BE SURE TO GET FEEDBACK FROM YOUR FACULTY RESEARCH MENTOR ON YOUR ABSTRACT BEFORE SUBMITTING YOUR FINAL VERSION!!

[1] Reference: Coghill, A. M.; Garson, L. R., Eds. *ACS Style Guide: Effective Communication of Scientific Information*; Oxford University Press: New York, NY, 2006; p20-23.

Sample Abstract: Follow the formatting of the sample abstract shown below. Title (centered, only first letter capitalized, **Times New Roman 14-point font and bold**), Authors (Times New Roman 12-point font and normal), Author Affiliation (*Times New Roman 12-point font and italic*), and Abstract (Times New Roman 12-point font and normal).

College students' perspectives and reasoning about nanotechnology risks and benefits

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Introduction of novel technologies, such as nanotechnology, has become a topic of interest in scientific literacy and education. Consequently, the perspectives of the public on the risks and benefits associated with nanotechnology are important. In this study, we collected and analyzed pre-service elementary teachers' perceptions on nanotechnology to further inform a larger scale instructional innovation for pre-service science teacher education. We surveyed students in an elective, media-literacy course through measurement instruments such as pretests, worksheets, and posttests to analyze their perspectives and reasoning as related to the use of nanotechnology for everyday problem solving. The results indicated that students had a "cautiously optimistic" perspective on the application of nanotechnology and that this general perspective was stable and unchanging after instructional innovation. However, we found interesting changes in how students reasoned for these opinions. The significance of the study is that it addresses the concerns of improving public literacy about novel technologies by way of elementary teacher training, and thus it establishes a way for public literacy that starts early in K-12 education.

Part 2: Identify a reputable research publication or conference in which you would, hypothetically, like to present your research. This should be a recognized journal or conference that relates to your research field. This is due July 10, 2020. The official name and corresponding address of the publication or conference will be included as the inside address within your query letter.

An example publication or conference is:

Science, a peer reviewed journal published by the American Association for the Advancement of Science (AAAS)

OR

The 8th Euroacademia International Conference on Identities and Identifications: Politicized Uses of Collective Identities to be held June 28-29, 2019 in Dublin, Ireland (http://euroacademia.eu/conference/8th-identities-and-identifications/).

Part 3: Draft a query letter to the editor or conference organizer of the research publication or conference identified in Project, Part 2 with attached updated resume. The query letter is a brief cover letter (one page maximum and minimum of 3 paragraphs) for your hypothetical journal article or conference, and should contain a summary of the main conclusion (not a word-for-word abstract) of your research, your goal of publication or presentation and justification for publication or presentation (e.g., Why is this journal/conference an appropriate venue for your research?), importance of your work, the names of any important scholars who worked with you or commented on your paper, and a brief explanation of your laboratory credentials. Please include contact information and follow a standard business letter format. Include:

1) Heading: full address of letter writer and date of letter
2) Inside address: name and full address of addressee
3) Salutation: e.g. Dear Dr. Anthony Smith
4) Body of Letter: minimum of three paragraphs, single spaced with double space between paragraphs, use clear and direct style and do not use abbreviations (e.g. use laboratory instead of lab)
5) Closing: complimentary closing (e.g. Sincerely or Cordially), place for handwritten signature, typed name of sender, title of sender, contact information of sender (phone number and email address)
6) Added notations: e.g. enc. for enclosure or att. for attachments of abstract and/or resume.

The attached resume should highlight your scholarly activities (undergraduate research/creative endeavors) and skills gained from these activities (ability to deal with setbacks, communicate results, and discuss intellectual merit of your research). Resources for building a resume can be found at the WVU Career Services Center (see https://careerservices.wvu.edu/students/build-a-resume). In addition, you should incorporate undergraduate scholarly activities (e.g., SURE and other creative projects) on your resume. Given below are two sources with good suggestions for how to include scholarly activities on your resume.

- University of Wisconsin-Superior, Career Services. Resume Guide: Incorporating Research Project Experiences. https://www.uwsuper.edu/career/students/resumes-letters/upload/Resume-Guide-Incorporating-Research.pdf (accessed May 2020).

- University of Missouri. How to Put Research on Your Resume. https://undergradresearch.missouri.edu/how-to-put-research-on-your-resume/ (accessed May 2020).

Project parts 1, 2, and 3 are due on July 10, 2020.