

Biomedical Innovation

Summer Assignment 2025

Part of Biomedical Innovations this year will be to participate in a shadowship/internship and complete a research project that you design. You are responsible for setting up your shadowship/internship! It MUST be in person, and no out-of-state internships are permitted. Your summer assignment has three parts: You will be able to start your internship at the beginning of November.

Part 1

- 1) Create a professional resume
- 2) Create a professional cover letter

***Each of these needs to be a PAPER copy, printed out and turned in on the first day of school!**

Helpful Hints:

- Canva/Microsoft Office has exceptional resume and cover letter templates!
- Resume
 - Should be no more than one page!
 - No crazy clipart or graphics
 - Must include a professional-looking headshot
- Cover Letter
 - Generic letter that can be used for shadowing positions
 - It should introduce yourself, explain why you are interested in the position, and what skills you have that you can contribute
 - Include in your letter that you are a student in the Lassiter STEM Academy Biomedical Pathway

Part 2

- 1) Research businesses around the area.
- 2) Complete the template labeled "Contact List" at the end of this packet. You will identify at least ten businesses you are interested in completing your shadowship/internship at.

Part 3

- 1) Brainstorm 5 ideas for your research project. It can be research that is done in the classroom using any of the PLTW equipment or it can be research in a laboratory at a local university or college. KSU and GT have several interesting projects going on. Reach out to the professors if you see something that interests you. You never know what opportunities might come from it!
- 2) Choose your best two ideas and complete the following in a Word Document.
 - a) Research question: What question are you trying to answer? Make sure it is specific! If you are participating in research in a lab, this may be a small project within a larger project that the lab works on. **Your research question must be novel and impactful.** "Which fertilizer helps plants grow the best," and comparable questions are below your level.

- b) Background: Find at least 5 sources about your research topic and summarize what is already known about your topic. Cohesively, include:
 - i) Justification- Why is your question important? Does it affect millions of people each year? Is it a major environmental concern?
 - ii) Background information- what basic information does the reader need before reading your paper? What previous studies have been done? What gaps remain in the field that you hope to address?
 - iii) Brief summary of how you will address your question- What methods do you plan to use?
- c) Hypothesis: Make a prediction about what you expect the outcome to be **based on research**. It should not be a random guess. You will eventually have to do a literature review, so keep up with any good sources that you find. Blogs and Wikipedia are not reliable sources and may not be used. Make sure it is clear what your independent and dependent variables are.
- d) Experimental design: Write an initial design brief that describes how you would approach this problem. This is just the initial design phase! I do not expect it to be perfect, but by now, you know that you need to be as specific and descriptive as possible and that you include the appropriate controls. You need to include materials so that you know what you'll need at the beginning of the school year.
- e) Citations: Any sources that you find need to be cited in APA format. I expect at least 5 per idea! At least 2 of them must be from a scholarly journal. Science, New England Journal of Medicine, are all good places to start. Google Scholar is a lifesaver.

*Note: your research project may also be designing/building something or designing some sort of project/innovation that has a product outcome. For instance, I have seen students design a knee brace based on a particular medical condition and design a cancer treatment facility incorporating a design that considers mental health. The goal is for you to research a problem and come up with a solution, but you must be able to gather some sort of quantitative data that you can analyze. It does not necessarily need to be traditional bench research. Feel free to think outside the box!

***The Word Document must be a PAPER copy, printed out and turned in on the first day of school!**

Contact List

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