Project Planning Module

General Instructions: This assignment is intended for you to use your creativity and apply what you have learned in class to come up with new peptide design ideas, in an industry-relevant context. For this module, you will also learn about project management tools. The topic of your project should be *based on any of the topics covered in class up to now.* These ideas might include extensions of the work presented in class or application of the technique to address a new problem. Please note that the proposal can relate to your research area but should be your own unique idea – not something your advisor has already told you to do. The scope should be limited to 1-2 characterization techniques and one simple hypothesis or goal. You are welcome to use resources in your own lab, but I require that you ask permission of your advisor and send me their approval for your activities.

For the purposes of this assignment, assume you are part of a "Scouting Research Team" working for a peptide production company. Your job is to find potentially profitable peptides. Your team will have to draft an engineering project plan (EPP), which will explain the potential promise of their peptide, as well as outline goals, a timeline, a budget, team roles, and a critical issue analysis. Your team will present the plan to the class in a "kick-off meeting" and solicit feedback from your peers. Then your team will execute this plan throughout the semester. You will also be asked to give updates and meeting minutes throughout the semester, which will be turned in for a grade. A final report and presentation will be given to the class at the end of the semester with the findings.

The project is broken up into the following components:

Engineering Project Plan and Kickoff Presentation 10%
Final Report and Presentation 10%
Project Meeting Notes and Updates 5%

Details on each component are listed below:

Engineering Project Plan
An engineering project plan (EPP) is a concise document which is a formal, approved document used to guide both project execution and project control. The primary uses of the project plan are to document planning assumptions and decisions, facilitate communication among stakeholders, and document approved scope, cost, and schedule baselines. A few project planning tools are provided in this document, and a template will be provided. The following elements should be included:

1) Motivation
   a. From an organizational perspective describe why the peptide you want to explore is worth exploring– can it be included in future products that people will purchase? How many people might purchase it? Will it help the company in any other way?
2) Project Scope
   a. Vision
      i. By definition, the project scope is the "work performed to deliver a product, service, or result with the specified features and functions." Think of the project scope statement as the vision for the project. A good vision imparts to the reader what future success looks like, therefore, a good project scope statement imparts to the reader what a successful end-state looks like for the project.
      ii. Provide a list of goals/milestones

   b. Product/Peptide Design

i. Describe the exact peptide sequence you want to purchase and describe the design elements. Include a list of peptide design constrains – this includes your own constraints but also remember you must remain within budget and timeline. We will order peptides through Genscript: https://www.genscript.com/peptide.html?src=pullmenu. You must obtain a quote for the peptides first, and let them know you want them as fast as possible. Below is a table of lead times versus product quality (as of 2019):

Length		5-15aa		16-25aa	
Qty TAT		1-19mg	20-100mg	1-19mg	20-100mg
Purity	crude	7	7	8	8
	Desalt/>70%/>75%/>80%/>85%/>90%/>95% purity	11	13	13	15
	98% purity	12	13	14	16

Peptides should be designed for the fast peptide service, such that they arrive NO LATER than 13 days after the order is placed. It is best to design for shorter times so that you have enough time to get the samples prepared by the lab technician, taken to analysis, and for you to work up the data.

c. Test Plan and Matrix
    i. Describe test plan that will be implemented and how it will help show the utility of this peptide. For this project, at least one characterization technique must be selected. You should detail a text matrix, which is a chart showing each test group with the conditions, and how many repeats will be done.

3) Schedule
    a. Provide a list of tasks to be completed with a due date for each one. Include the Kickoff, Final Report and Presentation in this list. Include any trainings that are needed or approvals for work in a lab.
    b. This should be in table format: Task, Due Date

4) Budget
    a. Provide an estimated cost for specific components of the project. **Your maximum budget for this project is $1000.**

5) Roles and Responsibilities
    a. Make a list of personnel involved with their roles and responsibilities. Include roles and specific responsibilities for your team members (including a project leader), as well as the laboratory technician, personnel at the shared facilities and the instructor for the class.

6) Risk Management Plan
    a. Include a critical issue analysis table at the end of your document. You should be creative in determining potential issues, the likelihood they will happen, the potential impact they will have, and what mitigation strategies you have to avoid them or mitigate them. Ask yourself – what does failure look like at the end of this project and how can I avoid it?

7) Communication Plan
    a. Outline a plan for communication. This includes email policies, meeting frequency, plan for contacting collaborators/vendors, project updates, reports and kickoff presentation.

8) Procurement Plan
    a. Outline a plan for obtaining the materials you need. This can include calling vendors to ask for lead times before making purchases, sending the laboratory technique requests and allowing time for processing.

9) Quality Plan
    a. How will you ensure our products (reports, data) are of high quality?

On Campus Tools: a list will be provided in a separate document, but please also look online!

Making Purchases: Purchase requests can be sent to our Lab Technician with the instructor cc'd in an email. *You must provide the product number, quantity, and projected price.* If it isn't a common vendor, the Technician will ask you to provide a quote from that vendor. You should obtain necessary quotes (like for peptides) early in the project. If you do not provide all of the necessary information, you risk your purchases being delayed.

Sample Preparation Requests: Sample preparation is facilitated by our Lab Technician. When your materials are all in and you have a solid plan, send an email request detailing the exact protocol to follow. You must include necessary concentrations, storage requirements, and hand-off plans for your sample. Please allow at least 3 days for samples to be prepared. If you do not provide all of the necessary information, you risk your sample preparation being delayed.

Kick-off Presentation: Details about the kick-off presentation will be given later in the semester. It will have much of the same information as your EPP.

Project Updates: These ~bi-weekly are due according to the schedule in the syllabus. A template will be provided, and the document should be uploaded for a grade. You must always update on the current budget and money spent, as well as meeting minutes with your group. You must meet at least once per update.

Final Report and Presentation: You will close your project out with a final report and presentation to the class. A template will be provided for your final report. Details about the presentation will be given later in the semester.

Grading:
Reports will be graded on completeness (did you include everything in this handout?), clarity, succinctness, writing quality and quality of project plan. Figures should be publication quality with sufficient captions.

Presentations will be graded on completeness, clarity, slide quality, and time management. They are meant more as a tool to communicate to the class what your plans and results are. Figures should be clear and high quality.