ANALYTICAL SCIENCES ORIGINAL RESEARCH PROPOSAL GUIDELINES

I. OBJECTIVE:

Your objective in this 3rd Year Original Research Proposal requirement is to develop an original research idea in the area of Analytical Chemistry into a cogent proposal. Your proposal should exploit your knowledge of analytical chemistry to help you answer an interesting and/or important question in the field that is *distinct from your current area of research.*

In developing your ideas for this Proposal, you should ask yourself the following questions about your proposed work BEFORE you start writing about a topic area:

1. What is the perceived need? Is there are a need?
2. What does your approach enable? Is it a new approach?
3. What does your approach enable that cannot already be done? What can you do with your approach that no one else can currently do?
4. What do you imagine disclosing in the first manuscript about this research?

II. PROPOSAL FORMAT:

1. *Cover Page*: On the front of your proposal, please indicate the proposal title, your name, department, year of study, and research advisor's name.

2. *Title*: Indicate the title of the proposal on the first page of the proposal text.

3. *Abstract*: A 250-word, brief summary of the proposed work highlighting the rationale for the proposed research and its scientific objective—what question are you trying to answer? What is your general approach?

4. *Proposal Bo*dy: The body of your proposal should be no more than 1700 words, double-spaced, in 12-point type, *excluding* the abstract, figures, and references. The following subsections of the body should be clearly indicated:

5. *Background and Significance*: a section describing the broader context for the proposed work, establishing the perceived need and clearly noting any relevant prior work in the field, with attention to literature precedents for the proposed work.

6. Project Goals: A description of the goals you plan to accomplish in this project.

7. *Approach*: an outline of the strategy that you propose to solve the problem you have selected.

8. *Initial studies:* If you were given a fully equipped lab today, what are the first experiments you would do. Propose specific experiments including experimental conditions, solvents, temperatures, etc. and conditions for any measurements that you plan to conduct.
If your initial experiments fail, what are your contingency plans?

8. *Future studies*: If your initial studies are successful, where do you think this research will lead and what else would you do?

10. FIGURES: You should use descriptive figures with well-written captions to help convey your ideas. The Figures should be embedded in the text at or near the point at which they are first introduced. All Figures must be referenced in the text–not referencing a figure indicates to the reader that it is not important! *Figures should absolutely <u>not</u> be an afterthought in this exercise–see below for a strategy tip.*

11. References: Citation <u>must</u> include the names of <u>all</u> authors, complete article title, journal title, year of publication, volume number, and pages of the cited article:

Siatkowski, R. E.; Dunn, D. A.; Botto, R. E. "Fundamental Geochemical Properties of Materials Relevant to Petroleum Research," *Journal of Obscure Chemistry* 2006, 16, 200-215.

<u>STRATEGY TIP</u>: This is a relatively short proposal and you need to be efficient with your writing. I suggest that you start by hand-sketching a minimum number of figures required for you to describe your objective and the means by which you propose to achieve it. I suggest that you then translate these figures into computer-drawn graphics (using ChemDraw, Adobe Illustrator, etc.), and that you arrange them in the order of presentation. After you have completed these steps, you should you start writing, with the goal of writing text to explain the proposal are, objective, and specific aims using the figures as an integral part of the proposal narrative. *Figures should absolutely <u>not</u> be an afterthought in this exercise.*