

**Chemistry 460**  
**Chemistry Internship**  
**Spring, 2003**  
**1-3 hours**

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**Description:**

The chemistry internship involves working with a Memphis area corporation, nonprofit organization, or government laboratory, doing research with mentor who is a professional chemist or chemical engineer.

The course consists primarily of activities directed towards solving a chemical problem, either in a chemical manufacturing environment or some other type of experimentally-based arena. This could also be a government testing lab, in which the research is directed towards new analytical methods development, or in a forensics laboratory.

A typical project description follows, but this is only an example of a possible project in a chemical manufacturing / new product development business.

Proposed Internship: Effect of Monomers, Additives, and Fillers on Solid Surface Polymerization Product

The Rhodes Chemistry Intern would work with an R&D engineer and a Marketing Specialist to optimize a European formulation for Avron acrylic solid surface (a product similar to DuPont "Corian") for the American marketplace. Specifically, the Intern would evaluate currently available or readily obtainable ingredients for optimizing the acrylic solid surface formulation with respect to final surface aesthetics and minimizing: shrinkage, curing exotherm, vapor loss to environment, and cost of ingredients. A set of experiments will be devised by the Intern in consultation with the R&D Engineer and Marketing Specialist to optimize the above criteria using suggested ingredients that are known to be safe and effective. One or more statistically designed experimental approaches will be used based on statistical software used at Ineos Acrylics. The student will be taught use of several analytical instrument techniques for evaluation of products of the experiments.

The Intern will be responsible for performing the experimental work in a safe manner as trained by knowledgeable Ineos Acrylics personnel. A final student report will list the ingredients used, experimental methods employed, statistical approach, results, and recommendations for commercialization and/or for further work on the new product. A computer and work station will be provided to the student for use in the project and writing the final report.

**Course Goals:**

The goals of this course are:

1. To teach skills in the design and implementation of a research program.
2. To train you in integrating and applying your scientific knowledge.
3. To give experience in the operation of a chemical business or nonprofit organization.
4. To give you practice in written and oral presentation of research results.

**Policies:**

Your work schedule will be determined by the sponsoring organization. Your Rhodes College instructor will set guidelines for interim and final reporting of results that are compatible with your work schedule.

**Evaluation:**

Your grade in this course will be determined by your final report and oral presentation, with input from the mentor from the sponsoring organization. The mentor will be evaluating your work habits, not only your skill in the laboratory, so a good work performance and a cooperative attitude are essential. The grading is on a pass/fail basis.

**Written report:**

The written report will be a written version of your major oral presentation. The report must be written at a level appropriate for college seniors. It should be long enough to develop the significant scientific results and/or theory. A length of 10 to 15 pages is generally sufficient to accomplish this task. You must use standard grammar and spelling. The style of the report should be the same as that used in the *Journal of the American Chemical Society*. The details of this style are usually described in the January issue of that journal in any given year. Pay particular attention to the citations, figure captions, and table titles. The report must be word processed and double-spaced.

**Oral report:**

The oral presentation will guide the audience through the project rationale and plan, giving all necessary background information required for understanding. Your results should be identified as satisfying the original project goals, or perhaps as learning something that ran contrary to the original project goals.

Your instructor will guide you through the presentation preparation, teaching the elements of using a software platform like Microsoft PowerPoint. It is strongly recommended that a practice presentation be accomplished before the formal performance before an audience.

The presentation will normally be delivered at the annual Undergraduate Research Symposium on the Rhodes College campus. However, the additional presentation of a poster or talk at a professional conference could be required.