

CM450/550 – Fall 2002

Guidelines for Oral Presentations and Term Papers

The aims of the oral presentation and term papers are:

- To provide an opportunity for the student to learn in more depth an area of polymer chemistry that they find interesting and/or will increase their knowledge and understanding in a specific area.
- To help with and evaluate future research projects that may involve polymer synthesis and/or reactions.
- To practice oral presentations in front of peers.
- To learn how to critically evaluate a subject, discuss unanswered questions or deficiencies in the research paper(s).

Possible topics for either the oral presentation or term papers include:

- *Specialty polymers*
 - preceramic polymers, inorganic/organic hybrids
 - polymers for electronics (ferroelectric, piezoelectric, non-linear optics)
 - conductive and electroluminescent polymers, ladder polymers
 - biomedical polymers
 - recycling and degradation of polymers
 - dendritic and helical polymers, macrocyclic and rotaxanes
 - macromonomers, telechelic polymers
- *Polymerization methods*
 - developments in radical polymerization (e.g. miniemulsion, microemulsion)
 - ring-chain equilibria theory – polymerization of macrocycles
 - polymerization mechanism transformation reactions (e.g. radical to anionic, etc.)
 - metal-catalyzed step-growth and chain-growth polymerization
 - novel thermoplastic elastomers

There are many other possible topics. A good source of new and up-to-date research areas in polymer chemistry can be found in the *ACS Polymer Division Polymer Preprints* and the *ACS Polymer Materials, Science and Engineering Preprints*. Recent editions of the ACS journals *Macromolecules*, *Chemistry of Materials* and *Langmuir*, along with the *Journal of Polymer Science (Parts A and B)* and *Advanced Materials*, are also worth looking at for ideas.

Oral Presentation Grading:

Background information (30%)
Review of current knowledge (30%)
Your critical analysis of the subject (20%)
Presentation (20%)

Term Paper Grading:

Depth of review (60%)
Organization and writing (20%)
Your original contribution beyond current knowledge (20%)

The term paper should be approached as a review with additional contributions from yourself. These contributions may take the form of:

- Critical assessment of the subject and discussion of unanswered questions that need to be addressed
- Critical evaluation of the subject and discussion of any discrepancies and/or trends emerging from the contributions of different research groups
- Proposing experiments that would add to current knowledge
- Proposing a new molecular design that would improve properties or a new synthetic route for a specialty polymer

Do not worry about having a sophisticated proposal or question from the start – an idea will emerge from your literature search. Your final “contribution” does not need to be sophisticated either, but does need to demonstrate that you can think creatively and critically beyond what other review or research papers have been presented. While the term paper needs to be comprehensive, no more than 20-30 references are needed (especially if there are reviews that can be cited).

The term paper must be original – no plagiarizing!!!