Course Objectives:

This course discusses several relative simple examples in materials chemistry for the introduction of soft materials and nanomaterials. By obtaining “hand-on” experience in making simple building blocks of advanced materials, the students will learn the fundamental concepts of materials chemistry and be exposed to advanced topics in materials chemistry.

More specific objectives are:

1) To introduce students to fundamental concepts of materials chemistry.
2) To provide students with opportunities to gain the “hand-on” experience in the process of making advanced materials through chemistry.
3) To prepare students with the range of methods, topics, and skill in the field of materials chemistry.

Learn Goals:

Upon the completion of this course, student will grasp the essence of materials chemistry, understand the process of making advance materials, and the skills for making, characterizing, and designing materials through chemistry.

Course Prerequisite:

General chemistry, preferred with the knowledge of organic chemistry.

Course Plan:

This is a lab-lecture course with focuses on the lab. The instructor will present the topics and discuss the lab, which will be led by the teaching assistant. The students will work collaboratively to make and characterize the materials according to given experimental details.

Topics:

1. Polymeric Hydrogels
2. Magnetic Nanoparticles
3. Lyotropic Liquid Crystals
4. Gold Nanoparticles
5. Supramolecular Nanofibers/Hydrogels

**Evaluation:**
This course grade will base on the lab performance (including lab reports) and a final exam. Absence from either lectures or labs could result in fail of this course. (Lab report + performance) = 80%, Final Exam = 20%.

**Exams:**
There will be one final exams.

**Homework:**
Lab reports.

**Disabilities:**
If you are a student with a documented disability at Brandeis University and if you wish to request a reasonable accommodation for this class, please contact the Office of Disabilities Services immediately: [http://www.brandeis.edu/acserv/disabilities/undergradstudents.html](http://www.brandeis.edu/acserv/disabilities/undergradstudents.html) [http://www.brandeis.edu/acserv/disabilities/graduatestudents.html](http://www.brandeis.edu/acserv/disabilities/graduatestudents.html)
Please keep in mind that reasonable accommodations are not provided retroactively and that the University takes some time to process requests. The usual accommodation (50% extra time) is typically dealt with by extra time after the other students complete the exam.

**Academic Integrity:**
Each student in this course is expected to abide by the Rights and Responsibilities Handbook ([http://www.brandeis.edu/studentaffairs/srscs/rr/index.html](http://www.brandeis.edu/studentaffairs/srscs/rr/index.html)), with particular emphasis on section 4. The exams are to be taken without access to notes, calculators, or text and without assistance from another student. Instances of alleged dishonesty will be reported to the Brandeis Student Rights and Community Standards Office. Infringement of academic honesty by a student subjects that student to serious penalties, which may include failure on the assignment, failure in the course, suspension from the University, or other sanctions. If you have any questions about my expectations, please ask.

**Communication:**
LATTE and e-mail will be used extensively.

**Course Materials:**
Lecture Notes and Lab Manual.