



# COURSE OUTLINE

2018/2019

COURSE NAME: Synthesis and Application of Nanomaterials

COURSE CODE: NANO2320

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## COURSE DESCRIPTION

This course will present chemical aspects of nanoscience. The bottom-up approach to synthesis of nanomaterials will be systematically explored including classification of synthetic approaches, fundamentals of particle nucleation and growth, stabilization against aggregation, and control of particle size, morphology, structure, composition, and surface modification on the nanoscale. The fundamentals and properties of materials structured on the nanometer scale as building blocks of modern materials in a variety of applications such as quantum dots and nanoadhesion will be examined. A variety of different nanomaterials such as ferromagnetic nanoparticles will be synthesized and nanostructured materials with a variety of applications such as superhydrophobic surfaces will be prepared.

Course Credits: 3.00

Pre-requisites: CHEM1130

Equivalent Courses: NANS2420, NAN281

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## LEARNING OUTCOMES

OUTCOME	Upon successful completion of this course, you will be able to
1	Recommend synthetic methods used to prepare major classes of nanomaterials
2	Discuss synthetic approaches of nanomaterials
3	Research the application of nanomaterials
4	Synthesize nanomaterials The following concepts, skills, and issues are used to support this Outcome: <ul style="list-style-type: none"><li>• Synthesize silica sol-gels.</li><li>• Fabricate and test a superhydrophobic surface.</li></ul>

## STUDENT EVALUATION

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OUTCOME	ACTIVITY DESCRIPTION	MARK DISTRIBUTION
1, 2, 3 and 4	Exams	40%
1, 2, 3 and 4	Assignments	25%
1, 2, 3 and 4	Research	15%
1, 2, 3 and 4	Labs	20%
<b>TOTAL</b>		<b>100%</b>

## COURSE COMPLETION REQUIREMENTS

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Standard D or no less than 50%.

## DELIVERY METHOD

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This course will be taught using a variety of delivery methods which may include face-to-face, online, or blended teaching platforms. Activities such as collaborative exercises/assignments, seminars, labs, discussion, audio/visual presentations, and case studies may be used to support learning.

## STUDENT RESPONSIBILITY

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Enrolment at NAIT assumes that the student will become a responsible citizen of the Institute. As such, each student will display a positive work ethic, assist in the preservation of Institute property, and assume responsibility for his/her education by researching academic requirements and policies; demonstrating courtesy and respect toward others; and respecting expectations concerning attendance, assignments, deadlines, and appointments.

## EQUITY STATEMENT

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NAIT is committed to providing an environment of equality and respect for all people within the learning community, and to educating faculty, staff, and students in developing inclusive teaching and learning contexts that are welcoming to all.

Changes to This Course Outline: Every effort has been made to ensure that information in this course outline is accurate at the time of publication. The Institute reserves the right to change courses if it becomes necessary so that course content remains relevant. In such cases, the instructor will give the students clear and timely notice of the changes.

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