UNIVERSITY OF GUELPH
SCHOOL OF ENGINEERING

ENGG*3830 Bio-Process Engineering, Fall 2012

Instructor: Prof. Ping Wu
Room 2401 Albert Thornbrough Building
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Calendar Description (2012):

Application of engineering principles to the processing of biological products in the biological and food industry. Analysis and design of unit processes such as sedimentation, centrifugation, filtration, milling and mixing involving rheology and non-Newtonian fluid dynamics of biological materials. Analysis of heat and mass balances for drying evaporation, distillation and extraction.

Prerequisites: ENGG*2230, ENGG*2660, Co-requisite: ENGG*3260

Class Schedule:

Lectures: Tuesday and Thursday, 08:30AM - 09:50AM
MACK Room 306

Lab/Tutorials: Friday, 09:30AM - 10:20AM
ROZH Room 109

Exam: 4th December, 2012 (Tues), 11:30AM - 01:30PM
Room TBA

Course Objectives:

After successfully completing the course, students will be able to:

1. Analyze unit operations for biological processes using the techniques of engineering and system analysis
2. Analyze and quantify processes used for the recovery of biological materials in unit operations
3. Analyze and design unit operations involving simultaneous heat and mass transfer

Recommended Textbooks and References:

McCabe, W.L., Smith, J.C. and Harriott, P. 2005. Unit Operations of Chemical Engineering. 7th Edition. McGraw-Hill, Inc. New York.

Rizvi, S.S.H. and Mittal, G.S. 1992. Experimental Methods in Food Engineering. Van Nostrand and Reinhold, New York.

Geankoplis, C. 2003. Transport Process and Unit Operations. 4th Edition. Prentice Hall, Inc. New York.

Heldman, D.R., and Singh, R.P. 1981. Food Process Engineering. 2nd Edition. AVI Publishing Company, Inc. Connecticut.

Evaluation:

Short tests (quiz type)	20% (in tutorials, best 4 out of 5)
Project	30% (20% - report, due on 22nd November, 2012 and 10% - oral presentation)
Final Exam	50% (4th December, 2012 (Tues), 11:30AM - 01:30PM)

Assignments will be given out on various topics. It is not required for the students to submit the assignments for marking. However, students are strongly encouraged to complete them. Solutions of all the assignments will be made available on the course web page.

All short tests will be held during tutorial hour. Last class week will be used to present project reports.

All tests and examination will be open book.

University Policy on Academic Misconduct:

Academic misconduct, such as plagiarism, is a serious offence at the University of Guelph. Please consult the Undergraduate Calendar 2010-2011 and School of Engineering programs guide, for offences, penalties and procedures relating to academic misconduct.

http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml

Disclaimer:

The instructor reserves the right to change any or all of the above in the event of appropriate circumstances, subject to the University of Guelph Academic Regulations.