Distance Ed Course Offerings
Summer 2018   05/22/18 - 08/09/18

Full Session: 5/22/18 - 8/9/18
Session 1: 5/22/18 - 6/28/18
Session 2: 7/2/18 - 8/9/18

**Delivery Format Key**

**CL = Classroom LIVE**
An integrated, web-based virtual environment that delivers programs in real time following the on-campus schedule from classrooms on Lehigh's campus to students in their homes, at their workplace, or while traveling. These classes do require live participation and discussion and are also archived for later review.

**IS = Independent Study**
Delivery requires contact with advisor to arrange a project or research.

**OL = Online**
An asynchronous online format that offers flexible scheduling and participation. A 3-credit online course includes approximately 36 hours of content and assignments. Each online course requires an additional $100 online fee.

**HY = Hybrid**
A combination of both Classroom LIVE segments and asynchronous online segments. All DE students are required to connect in real time for the Classroom LIVE sessions, dates of which will be determined by the instructor.

**Course Registration**
Only officially admitted students are eligible to register for Lehigh University courses for academic credit.

All DE students will register online via Lehigh's campus portal, using their alternate pin. Students must have department approval for their course selections.

**Tuition**
The New Tuition rates for 2018-2019 will be approved in March '18. Tuition rates below are per credit hour and are the '17-18 rates. All courses with OL and HY delivery formats are subject to $100 support fee per course.

- **Arts and Science Courses:** $940 per credit (plus $100 support fee if OL/HY delivery format)
- **Business Courses:** $1,075 per credit (plus $100 support fee if OL/HY delivery format)
- **Engineering Courses:** $1,460 per credit (plus $100 support fee if OL/HY delivery format)
- **Healthcare Systems Engineering Program:** $1,460 per credit (plus $100 support fee if OL/HY delivery format)
- **Management Science and Engr. Program:** $1,460 per credit (plus $100 support fee if OL/HY delivery format)

Please click on the individual course Number/Sec fields to see the full Course Descriptions including:
- Course description
- Prerequisites
- Equipment or software requirements
- Attendance requirements
- Special course dates
- Textbooks

Students should note there may be elective courses outside their program area that fit curriculum requirements. Students should review all course offerings, prerequisites and seek Program Advisor's approval if interested in a course outside their program area.

When printing document, please adjust page range and print orientation if you only want to print the course list without all of the course descriptions.
## Arts & Science

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<tr>
<td>ARTS 490-D10</td>
<td>Full</td>
<td>IS</td>
<td>Thesis (MOC) - Biology and Chemistry</td>
<td>20639</td>
<td>ARTS 490</td>
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<td>BIOS 345-D10 OL</td>
<td>SS-1</td>
<td>OL</td>
<td>Molecular Genetics</td>
<td>20810</td>
<td>BIOS 345</td>
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<td>BIOS 371-D10 OL</td>
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<td>Elements of Biochemistry I</td>
<td>20318</td>
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<td>IS</td>
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<td>20345</td>
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<td>SS-2</td>
<td>IS</td>
<td>Special Topics in Molecular Biology</td>
<td>20521</td>
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<td>BIOS 427-D10</td>
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<td>IS</td>
<td>Techniques in Cell and Molecular Biology</td>
<td>20348</td>
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## Distance Ed Course Offerings
### Summer 2018

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<td>GBUS 424-D10</td>
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<td>Advanced Topics in Financial Management: Financial Analysis &amp; Modeling</td>
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<td>GBUS 424</td>
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<td>RBC 161</td>
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**Some classroom LIVE attend required (TBD)**

**Course start date: 7/10 - 8/9**

**Course meeting dates: Tues/Thurs from 6 to 9 pm. 2 makeup sessions: Friday, 7/13 and Friday, 7/27**
## Distance Ed Course Offerings
### Summer 2018

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<td>Polymer Nanocomposites</td>
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<td>MAT 492-D11 OL</td>
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<td>Special Topics: Polymer Coatings</td>
<td>21204</td>
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**DELIVERY METHOD KEY**
- CL = Classroom LIVE
- OL = Online
- IS = Independent Study
- HY = Hybrid

**SESSION KEY**
- Full = full term session
- SS1 = session 1
- SS2 = session 2

**Run Date:** 2/20/2018

**Current Version:** 2/20/18

**Summer 2018**
# Distance Ed Course Offerings

## Summer 2018

### DELIVERY METHOD KEY
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<td>Advanced Fluid Mechanics</td>
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<td>ME 490-D10</td>
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<td>Thesis - Mechanical Engineering</td>
<td>20289</td>
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<td>MECH 413-D10 OL</td>
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<td>Fracture Mechanics</td>
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<td>MSE 451-D10</td>
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<td>Project - Manufacturing Systems Engineering</td>
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<td>MSE 472-D10</td>
<td>Full</td>
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<td>Special Topics - Manufacturing Systems Engineering</td>
<td>20941</td>
<td>MSE 472</td>
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</table>
Research - Biology

Course Numbers: BIOS 407-D**

Prerequisites: none

Instructor - Advisor

Laboratory investigations in one of the department’s research areas.

Additional Course Requirements:
Need Student's Advisor.

Equipment / Software Requirements:
none specified

Notes:
(May be continued on next page)

Textbooks:
Research - Biology

Course Numbers: BIOS 407-D**

Prerequisites: none

Instructor - Advisor

Laboratory investigations in one of the department’s research areas.

Additional Course Requirements:
Need Student's Advisor.

Equipment / Software Requirements:
none specified

Notes:
(May be continued on next page)

Textbooks:
Independent Study in Materials

Course Numbers: MAT 310-D10

Prerequisites: none

Instructor - Prof. Raymond Pearson  (610) 758-3857  rp02@lehigh.edu

Provides an opportunity for advanced, independent study of selected topics in materials science and engineering not covered in other formal courses.
Please contact Prof. Raymond Pearson for more information.

Additional Course Requirements:
none specified

Equipment / Software Requirements:
none specified

Notes:
(May be continued on next page)

Textbooks:

Title: None Required

Author(s):
Edition:

Publisher:
ISBN(s):

Additional Info:
Special Topics: Polymer Coatings

Course Numbers: MAT 492-D11 OL

Prerequisites: none

Instructor - Eric Daniels (610) 758-6355 Eric.Daniels@Lehigh.edu

Special Topics- Polymer Coatings will provide a survey of the various types of polymer coatings that are employed both in the consumer as well as the industrial marketplaces. Topics in the course will include a short discussion of the methods used to synthesize the polymer binder in a coating, what components are included in a coatings formulation, and how the various components interact with one another. Lectures will also include the various methods used to apply a coating to a particular substrate, characterization methods for various types of coatings, coatings properties, and a wide ranging discussion of the various types of polymer coatings applications such as architectural paints, wood coatings, electrodeposition for automotive coatings, can coatings, paper coatings etc. When the course is complete, the student will have a wide ranging understanding of polymer coatings and their many application areas.

Additional Course Requirements:
none specified

Equipment / Software Requirements:
none specified

Notes:

(May be continued on next page)

Textbooks:

Title: Organic Codings Science and Technology

Required

Author(s): Leno Wicks, Jr.; Frank Jones; S. Peter Pappas; Douglas Wicks
Publisher: Wiley

Strategic Supply Management

Course Numbers:  GBUS 450-D10

Prerequisites:  none

Instructor - Michael Tyler  mtyler@eversontesla.com

A course designed to introduce the MBA/MSE student to the vital role played by supply management in today’s global economy. The structure of the course includes a framework that shows how leading firms create competitive advantage from supply management. Topics covered include measurement, organizational design, human resources, information systems, longer-term contracting, supplier relationship management, cost management, early supplier involvement, global sourcing, and the formation of supply alliances. The course consists of lectures, web-based discussion, current readings, and case analysis.

Additional Course Requirements:
  Some classroom LIVE sessions required (TBD). There will be a link to the Collaborate software download on the Course Site page.

Equipment / Software Requirements:
  none specified

Notes:
  Some classroom LIVE attend required (TBD)

Textbooks:

Required  Title:  To Be Determined
Research In BIOS

Course Numbers:  BIOS 407-D11

Prerequisites:

Instructor - Matthias Falk  (610) 758-5896  mmf4@lehigh.edu

Additional Course Requirements:

Equipment / Software Requirements:

Notes:

(May be continued on next page)

Textbooks:
Research In BIOS

Course Numbers: BIOS 407-D59

Prerequisites:

Instructor - Prof. Linda Lowe-Krentz (610) 758-5084 lj10@lehigh.edu

Additional Course Requirements:

Equipment / Software Requirements:

Notes:

(May be continued on next page)

Textbooks:
Special Topics in Molecular Biology

Course Numbers: BIOS 405-D11

Prerequisites: none

Instructor - Prof. Vassie Ware (610) 758-3690 vcw0@lehigh.edu

Research, conferences, and reports on selected topics not covered in the general graduate offerings. May be taken more than once for credit.

Additional Course Requirements: none specified

Equipment / Software Requirements: none specified

Notes:

(May be continued on next page)

Textbooks:

Title: None Required
Author(s): Edition:
Publisher: ISBN(s):
Additional Info:

Title: None Required
Author(s): Edition:
Publisher: ISBN(s):
Additional Info:
Thesis - Mechanical Engineering

Course Numbers: ME 490-D10

Prerequisites: none

Instructor - Prof. Jacob Kazakia  (610) 758-3785  jyk0@lehigh.edu

Additional Course Requirements: none specified

Equipment / Software Requirements: none specified

Notes: (May be continued on next page)

Textbooks:

Title: None Required

Author(s): Edition:
Publisher: ISBN(s):
Additional Info:
Research In BIOS

Course Numbers:  BIOS 407-D13

Prerequisites:

   Instructor - Prof. Michael Behe  (610) 758-3474  mjb1@lehigh.edu

Additional Course Requirements:

Equipment / Software Requirements:

Notes:

(May be continued on next page)

Textbooks:
Research in BIOS

Course Numbers: BIOS 407-D25

Prerequisites:

Instructor - Prof. Vassie Ware  (610) 758-3690  vcw0@lehigh.edu

Additional Course Requirements:

Equipment / Software Requirements:

Notes:

(May be continued on next page)

Textbooks:
Dissertation - Mechanical Engineering

**Course Numbers:** ME 499-D10

**Prerequisites:** none

Instructor - Prof. Jacob Kazakia

(610) 758-3785  jyk0@lehigh.edu

Please contact Prof. Jacob Kazakia for more information.

**Additional Course Requirements:**
none specified

**Equipment / Software Requirements:**
none specified

**Notes:**
(May be continued on next page)

**Textbooks:**

Title: *None Required*

Author(s):  
Edition: 
Publisher:  
ISBN(s): 
Additional Info:
Thesis - Manufacturing Systems Engineering

Course Numbers: MSE 490-D10

Prerequisites: none

Instructor - Advisor

Please contact your Advisor for more information.

Additional Course Requirements:
   Instructor Permission

Equipment / Software Requirements:
   none specified

Notes:
(May be continued on next page)

Textbooks:

   Title: None Required

   Author(s):
   Edition:

   Publisher:
   ISBN(s):

   Additional Info:
Thesis - Materials Science

Course Numbers: MAT 490-D10

Prerequisites: none

Instructor - Prof. Raymond Pearson (610) 758-3857 rp02@lehigh.edu

Please contact Prof. Ray Pearson for more information.

Additional Course Requirements: none specified

Equipment / Software Requirements: none specified

Notes: (May be continued on next page)

Textbooks:
Engineering Statistics

Course Numbers:  ISE 328-D10 OL

Prerequisites:  none

Instructor - Janos Pinter  (610) 758-4430  jdp416@lehigh.edu

Random variables, probability functions, expected values, statistical inference, hypothesis testing, regression and correlation, analysis of variance, introduction to design of experiments, and fundamentals of quality control. This course requires use of Minitab Software.

Additional Course Requirements:
  none specified

Equipment / Software Requirements:
  Minitab software required. Access to Minitab is available to distance education students by using Lehigh's Virtual Public Site. Instructions on using the Virtual Public Site will be provided to registered students on the course web site.

Notes:

(May be continued on next page)

Textbooks:

Title:  TBD

Author(s):  Edition:
Publisher:  ISBN(s):
Additional Info:
Molecular Genetics

Course Numbers: BIOS 345-D10 OL

Prerequisites: none

Instructor - Prof. Mike Kuchka (610) 758-3687 mrk5@lehigh.edu

The organization and replication of genetic material; mutagenesis; mechanisms of regulation; mechanisms of gene transmission involving prokaryotes and eukaryotes and their viruses; techniques for intervention into genetic organization and expression.

Additional Course Requirements: none specified

Equipment / Software Requirements: none specified

Notes:
(May be continued on next page)

Textbooks:

Required Title: Molecular Biology, Principles of Genome Function

Author(s): Craig et al Edition: 2nd edition
Publisher: Oxford University Press ISBN(s): 978-0-19-870597-0

Additional Info:
Link to Lehigh Bookstore

Link to Lehigh Bookstore
Elements of Biochemistry I

Course Numbers: CHM 371-D10 OL

Prerequisites: One year of organic chemistry

Instructor - Prof. Michael Behe
(610) 758-3474  mjb1@lehigh.edu

A general study of carbohydrates, proteins, lipids, nucleic acids, and other biological substances and their importance in life processes. Protein and enzyme chemistry are emphasized.

Additional Course Requirements:
Permission required for non CAS students.

Equipment / Software Requirements:
none specified

Notes:

Textbooks:

Required
Title: Biochemistry
Author(s): Voet and Voet
Publisher:
ISBN(s): 978-0470-57095-1
Additional Info: Lehigh Bookstore

Optional
Title: Biochemistry, Student Solutions Manual
Author(s): Voet and Voet
Publisher:
ISBN(s): 978-1-1180-0814-0
Additional Info: Lehigh Bookstore

Required
Title: Biochemistry
Author(s): Voet and Voet
Publisher:
ISBN(s): 978-0470-57095-1
Additional Info: Lehigh Bookstore
Course Descriptions  Summer 2018

Optional

Title: Biochemistry, Student Solutions Manual

Author(s): Voet and Voet
Edition: 4th
Publisher:
ISBN(s): 978-1-1180-0814-0

Additional Info:
Lehigh Bookstore

Original List Run Date: 2/20/2018
Current Version: 2/20/18
Research - Biology

Course Numbers: BIOS 407-D10

Prerequisites: none

Instructor - Prof. Vassie Ware (610) 758-3690 vcw0@lehigh.edu

Laboratory investigations in one of the department’s research areas.

Additional Course Requirements:
   Need Student's Advisor.

Equipment / Software Requirements:
   none specified

Notes:
   (May be continued on next page)

Textbooks:
Research In BIOS

Course Numbers: BIOS 407-D26

Prerequisites:
Instructor - Prof. Robert Skibbens

(610) 758-6162 rvs3@lehigh.edu

Additional Course Requirements:

Equipment / Software Requirements:

Notes:
(May be continued on next page)

Textbooks:
Research - Biology

Course Numbers: BIOS 407-D54

Prerequisites: none

Instructor - Prof. Lynne Cassimeris (610) 758-6275 lc07@lehigh.edu

Laboratory investigations in one of the department’s research areas.

Additional Course Requirements:
Need Student's Advisor.

Equipment / Software Requirements:
one specified

Notes:
(May be continued on next page)

Textbooks:
Thesis (MOC) - Biology and Chemistry

Course Numbers: ARTS 490-D10

Prerequisites: none

Instructor - Staff

Contact Prof. Ware (Biology) or Prof. Miller (Chemistry) for further instructions

Additional Course Requirements: none specified

Equipment / Software Requirements: none specified

Notes:
(May be continued on next page)

Textbooks:

Title: None Required

Author(s): Edition:
Publisher: ISBN(s):
Additional Info:
Research - Biology

Course Numbers: BIOS 407-D17

Prerequisites: none

Instructor - Gregory Lang (610) 758-6359 gil213@lehigh.edu

Laboratory investigations in one of the department’s research areas.

Additional Course Requirements:
Need Student’s Advisor.

Equipment / Software Requirements:
none specified

Notes:
(May be continued on next page)

Textbooks:
Advanced Topics in Financial Management: Financial Analysis & Modeling

Course Numbers:  GBUS 424-D10

Prerequisites:  GBUS 419 or designated finance representative approval

Instructor - Prof. Samuel Weaver  (610) 758-5282  scw0@lehigh.edu

Advanced topics relating to specific areas of corporate finance such as: theoretical and empirical examination of recent developments in financial management, asset valuation and capital budgeting including the role of uncertainty, imprecise forecasts, risk preferences, inflation, market conditions, and the global marketplace, working capital management, leasing, mergers, and financing.

Additional Course Requirements:
Numerous articles and chapters will be distributed throughout the semester via CourseSite.

Equipment / Software Requirements:
none specified

Notes:
(May be continued on next page)

Textbooks:
Required  Title: The Essentials of Financial Analysis
Author(s): Samuel C. Weaver  Edition: 2012

Additional Info:
Link to Lehigh Bookstore
Fracture Mechanics

Course Numbers: MECH 413-D10 OL

Prerequisites: MATH 205, MECH 305 or equivalent course in advanced mechanics of materials.

Instructor - Herman Nied (610) 758-4128 hfn2@lehigh.edu

Elementary and advanced fracture mechanics concepts; analytical modeling; fracture toughness concept; fracture toughness testing; calculation of stress intensity factors; elastic-plastic analysis; prediction of crack trajectory; fatigue crack growth and environmental effects; computational methods in fracture mechanics; nonlinear fracture mechanics; fracture of composite structures; application of fracture mechanics to design.

Additional Course Requirements:
none specified

Equipment / Software Requirements:
MATLAB, C and/or Fortran compilers, ANSYS, and specialized finite element software. Students will be provided with application access by course instructor.
Access to MATLAB is available to distance education students by using Lehigh's Virtual Public Site

Notes:
(May be continued on next page)

Textbooks:
Required
Title: Principles of Fracture Mechanics
Author(s): Sanford, R. J. Edition: 2003
Publisher: Prentice Hall ISBN(s): 0-13-092992-1

Additional Info:
Link to Lehigh Bookstore
Project - Manufacturing Systems Engineering

Course Numbers: MSE 451-D10

Prerequisites: none
Instructor - Advisor

Please contact your Advisor for more information.

Additional Course Requirements:
Instructor Permission

Equipment / Software Requirements:
none specified

Notes:
(May be continued on next page)

Textbooks:
Title: None Required
Author(s): Edition:
Publisher: ISBN(s):
Additional Info:
Research - Biology

Course Numbers: BIOS 407-D14

Prerequisites: none

Instructor - Prof. Lynne Cassimeris (610) 758-6275 lc07@lehigh.edu

Laboratory investigations in one of the department’s research areas.

Additional Course Requirements:
    Need Student's Advisor.

Equipment / Software Requirements:
    none specified

Notes:
(May be continued on next page)

Textbooks:
Research - Biology

Course Numbers: BIOS 407-D65

Prerequisites: none

Instructor - Prof. Vassie Ware (610) 758-3690 vcw0@lehigh.edu

Laboratory investigations in one of the department’s research areas.

Additional Course Requirements:
Need Student's Advisor.

Equipment / Software Requirements:
none specified

Notes:
(May be continued on next page)

Textbooks:
Research - Biology

Course Numbers: BIOS 407-D57

Prerequisites: none

Instructor - Gregory Lang (610) 758-6359 gil213@lehigh.edu

Laboratory investigations in one of the department’s research areas.

Additional Course Requirements:
Need Student's Advisor.

Equipment / Software Requirements:
none specified

Notes:
(May be continued on next page)

Textbooks:
Dissertation - Materials Science

Course Numbers: MAT 499-D10

Prerequisites: none

Instructor - Prof. Raymond Pearson (610) 758-3857 rp02@lehigh.edu

Contact Prof. Ray Pearson for further instructions.

Additional Course Requirements:
none specified

Equipment / Software Requirements:
none specified

Notes:
(May be continued on next page)

Textbooks:
Polymer Nanocomposites

Course Numbers: MAT 486-D10 OL

Prerequisites: An introductory polymer course (MAT 204 or MAT 393) or consent of the department chair.

Instructor - Prof. Raymond Pearson (610) 758-3857 rp02@lehigh.edu

Synthesis, morphology and properties of polymer nanocomposites. Comparisons with traditional particulate composites will be made and models predicting properties will be emphasized. Melt viscosity, mechanical properties, barrier properties and flame retardancy will be discussed.

Additional Course Requirements: none specified

Equipment / Software Requirements: none specified

Notes:
(May be continued on next page)

Textbooks:

<table>
<thead>
<tr>
<th>Required</th>
<th>Title: Polymer Nanocomposites: Processing, Characterization, and Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author(s): Joseph Koo</td>
<td>Edition: 2006</td>
</tr>
</tbody>
</table>

Additional Info:
Lehigh Bookstore
Research - Biology

Course Numbers: BIOS 407-D51

Prerequisites: none

Instructor - Amber Rice

amr511@lehigh.edu

Laboratory investigations in one of the department’s research areas.

Additional Course Requirements:
Need Student's Advisor.

Equipment / Software Requirements:
none specified

Notes:
(May be continued on next page)

Textbooks:
Research - Biology

Course Numbers: BIOS 407-D58

Prerequisites: none

Instructor - Prof. Mike Kuchka (610) 758-3687 mrk5@lehigh.edu

Laboratory investigations in one of the department’s research areas.

Additional Course Requirements: Need Student’s Advisor.

Equipment / Software Requirements: none specified

Notes: (May be continued on next page)

Textbooks:
Dissertation - Chemical Engineering

Course Numbers: CHE 499-D10

Prerequisites: none

Instructor - Prof. Mayuresh Kothare (610) 758-6654 mvk2@lehigh.edu

Instructor - Prof. Kemal Tuzla (610) 758-4628 kt01@lehigh.edu

Please contact Prof. Kemal Tuzla or Prof. Mayuresh Kothare for information.

Additional Course Requirements: none specified

Equipment / Software Requirements: none specified

Notes: (May be continued on next page)

Textbooks:

Title: None Required

Author(s): Edition:
Publisher: ISBN(s):
Additional Info:
Sales Management

Course Numbers:   GBUS 467-D10

Prerequisites:   MBA 404 or with Instructor's permission.

Instructor - Prof. Steven Savino   (610) 758-5342   sls209@lehigh.edu

This graduate level course takes an integrated approach to the study of sales management, including the formulation of strategically sound programs, implementation of selling initiatives and the evaluation and control of the organization’s sales activities. Illustrative topics include the role of the sales manager in the divergent demands of multiple constituencies; the development of effective sales organizations; the salesperson's motivations and the development of flexible motivational and incentive plans; the variety of financial and non-financial rewards used by sales managers; forecasting sales volume, revenues and costs and evaluating performance by salesperson, territory, customer-type, market-type, and industry; and the coordination of the sales activities with other elements in a firm's marketing program. Learning methods include case studies whereby students’ are challenged in their ability to diagnose and address diverse problems and decisions that arise in developing and implementing a firm’s selling strategy. Specific attention will be focused on building, measuring and managing a firm’s sales plan. The course will be a combination of lectures, discussions, case analyses and group exercises.

Additional Course Requirements:

   none specified

Equipment / Software Requirements:

   none specified

Notes:

(May be continued on next page)

Textbooks:

   Title:   TBA

   Author(s):

   Publisher:

   Additional Info:

   Edition:

   ISBN(s):
Special Topics - Manufacturing Systems Engineering

Course Numbers: MSE 472-D10

Prerequisites: none

Instructor - Advisor

Special Topics

Additional Course Requirements:
Instructor Permission

Equipment / Software Requirements:
none specified

Notes:
(May be continued on next page)

Textbooks:
Control Systems

*Course Numbers:* ME 343-D10 OL

*Prerequisites:* ME 242, or ME 245, or ECE 125.

Instructor - Prof. Terry Hart

(610) 758-4173 teh305@lehigh.edu

Linear analysis of mechanical, electrical and aerospace control systems by root locus, frequency response, state space and digital techniques. A design project provides experience with practical issues and tradeoffs.

*Additional Course Requirements:* none specified

*Equipment / Software Requirements:* Students will require access to MATLAB and SIMULINK. DE students will be provided instructions to download the software from the LTS Virtual Public Site.

*Notes:* (May be continued on next page)

*Textbooks:*

**Required**

- Title: *Feedback Control of Dynamic Systems*
- Author(s): Franklin, Powell and Emami-Naeini
- Publisher: Pearson Prentice Hall, 2015
- Edition: 7th Edition
- ISBN(s): 978-0-13-349659-8
Course Descriptions  Summer 2018

Advanced Fluid Mechanics

Course Numbers:  ME 430-D10 OL

Prerequisites:  Undergraduate courses in fluid mechanics and differential equations.

Instructor - Prof. Charles Smith          (813) 909-2047  crs1@lehigh.edu

This course is a first graduate course in incompressible fluid mechanics, providing a broad coverage of key areas of viscous and inviscid fluid mechanics. Topics covered include: Flow kinematics, differential equations of motion, viscous and inviscid solutions, vorticity dynamics and circulation, vorticity equation, circulation theorems, potential flow behavior, irrotational and rotational flows, simple boundary layer flows and solutions, and real fluid flows and consequences, including aerodynamic drag and lift, and basic effects of turbulence.

Additional Course Requirements:

Equipment / Software Requirements:

   Must have access to a scanner, and ability to scan material to pdf files.

Notes:

(May be continued on next page)

Textbooks:

Provided with course at no charge  Title: Introduction to Graduate Fluid Mechanics

Author(s):  C. R. Smith   Edition:  Electronic Book
Publisher:
ISBN(s):

Additional Info:
Research - Biology

Course Numbers: BIOS 407-D19

Prerequisites: none

Instructor - Prof. Linda Lowe-Krentz (610) 758-5084 lj0@lehigh.edu

Laboratory investigations in one of the department’s research areas.

Additional Course Requirements:

Need Student’s Advisor.

Equipment / Software Requirements:

none specified

Notes:

(May be continued on next page)

Textbooks:
Research - Biology

Course Numbers: BIOS 407-D53

Prerequisites: none

Instructor - Prof. Michael Behe

(610) 758-3474 mjbe@lehigh.edu

Laboratory investigations in one of the department’s research areas.

Additional Course Requirements:
Need Student's Advisor.

Equipment / Software Requirements:
none specified

Notes:

(May be continued on next page)

Textbooks:
Thesis (MOC) - Engineering

Course Numbers: ENGR 490-D10

Prerequisites: none

Instructor - Prof. John Coulter (610) 758-6310 jc0i@lehigh.edu

Please contact your advisor.

Additional Course Requirements: none specified

Equipment / Software Requirements: none specified

Notes:

(May be continued on next page)

Textbooks:

Title: None Required

Author(s): Edition:
Publisher: ISBN(s):
Additional Info:
Course Descriptions  Summer 2018

Mechanical Behavior of Polymers

Course Numbers:  MAT 482-D10 OL

Prerequisites:  none

Instructor - Prof. Raymond Pearson  (610) 758-3857  rp02@lehigh.edu

A treatment of the mechanical behavior of polymers. Characterization of experimentally observed viscoelastic response of polymeric solids with the aid of mechanical model analogs. Topics include time-temperature superposition experimental characterization of large deformation and fracture processes, polymer adhesion, and the effects of fillers, plasticizer, moisture and aging on mechanical behavior.

Additional Course Requirements:  none specified

Equipment / Software Requirements:  none specified

Notes:  
(May be continued on next page)

Textbooks:

Required  
Title:  Mechanical Properties of Solid Polymers

Author(s):  Ward and Sweeney  
Publisher:  Wiley  
Edition:  3rd  
ISBN(s):  978-1444319507

Link to Lehigh Bookstore
Special Topics in Molecular Biology

Course Numbers: BIOS 405-D10

Prerequisites: none

Instructor - Prof. Vassie Ware (610) 758-3690 vcw0@lehigh.edu

Research, conferences, and reports on selected topics not covered in the general graduate offerings. May be taken more than once for credit.

Additional Course Requirements: none specified

Equipment / Software Requirements: none specified

Notes: (May be continued on next page)

Textbooks:

Title: None Required
Author(s):
Publisher:
ISBN(s):
Additional Info:

Title: None Required
Author(s):
Publisher:
ISBN(s):
Additional Info:
Techniques in Cell and Molecular Biology

Course Numbers: BIOS 427-D10

Prerequisites: none

Instructor - Prof. Vassie Ware (610) 758-3690 vcw0@lehigh.edu

Independent research with approval of advisor. Laboratory experiences in three or more cell and molecular biological techniques: gel electrophoresis of nucleic acids/proteins; polymerase chain reaction; DNA/RNA sequencing; molecular hybridization techniques; fluorescence microscopy; confocal microscopy; flow cytometry; electron microscopy tissue preparation; immunological detection methods; molecular cloning techniques; molecular cloning techniques; oocyte microinjection techniques; tissue culture methods and autoradiography.

Additional Course Requirements:
Contact Prof. Ware for further instructions

Equipment / Software Requirements:
none specified

Notes:
(May be continued on next page)

Textbooks:
Title: None Required
Author(s):
Publisher:
ISBN(s):

Additional Info:
Research - Biology

Course Numbers: BIOS 407-D18

Prerequisites: none

Instructor - Prof. Mike Kuchka (610) 758-3687 mrk5@lehigh.edu

Laboratory investigations in one of the department’s research areas.

Additional Course Requirements:
Need Student's Advisor.

Equipment / Software Requirements:
none specified

Notes:
(May be continued on next page)

Textbooks:
Research - Biology

*Course Numbers:* BIOS 407-D29

*Prerequisites:* none

Instructor - Prof. Mary Kathryn Iovine  
(610) 758-6981  mki3@lehigh.edu

Laboratory investigations in one of the department’s research areas.

*Additional Course Requirements:*  
Need Student's Advisor.

*Equipment / Software Requirements:*  
none specified

*Notes:*  
*(May be continued on next page)*

*Textbooks:*
Research - Biology

Course Numbers: BIOS 407-D69

Prerequisites: none

Additional Course Requirements: Need Student's Advisor.

Equipment / Software Requirements: none specified

Notes: (May be continued on next page)

Textbooks:
Research - Biology

Course Numbers: BIOS 407-D66

Prerequisites: none

Instructor - Prof. Robert Skibbens  (610) 758-6162  rvs3@lehigh.edu

Laboratory investigations in one of the department’s research areas.

Additional Course Requirements:
Need Student's Advisor.

Equipment / Software Requirements:
none specified

Notes:
(May be continued on next page)

Textbooks:
Elements of Biochemistry I

Course Numbers: BIOS 371-D10 OL

Prerequisites: One year of organic chemistry

Instructor - Prof. Michael Behe (610) 758-3474 mjb1@lehigh.edu

A general study of carbohydrates, proteins, lipids, nucleic acids, and other biological substances and their importance in life processes. Protein and enzyme chemistry are emphasized.

Additional Course Requirements:
Permission required for non CAS students.

Equipment / Software Requirements:
none specified

Notes:

(May be continued on next page)

Textbooks:

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<tr>
<th>Required</th>
<th>Title: Biochemistry</th>
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<tr>
<td>Author(s): Voet and Voet</td>
<td>Edition: 4th</td>
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<td>Publisher:</td>
<td>ISBN(s): 978-0470-57095-1</td>
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<td>Lehigh Bookstore</td>
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<table>
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<tr>
<th>Optional</th>
<th>Title: Biochemistry, Student Solutions Manual</th>
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<tr>
<td>Author(s): Voet and Voet</td>
<td>Edition: 4th</td>
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<tr>
<td>Publisher:</td>
<td>ISBN(s): 978-1-1180-0814-0</td>
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<td>Additional Info:</td>
<td>Lehigh Bookstore</td>
</tr>
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</table>
Optional

Title: *Biochemistry, Student Solutions Manual*

Author(s): Voet and Voet

Edition: 4th

Publisher:

ISBN(s): 978-1-1180-0814-0

Additional Info:

Lehigh Bookstore
Project Management Fundamentals

Course Numbers: PMGT 409-D10

Prerequisites: none

Instructor - Jody Rennie  

Introduction to project management - survey of the knowledge areas and approaches to managing projects. Looks at the relationship of projects to organizational strategy and culture, how to initiate a project, principles of planning and project execution and control, managing stakeholders, and communicating effectively. A review of the competencies required to address the complexities and challenges of projects. Hands-on approach to developing project management work artifacts and simulated project management game are used.

Additional Course Requirements:
none specified

Equipment / Software Requirements:
none specified

Notes:

**Course start date: 7/10 - 8/9
Course meeting dates: Tues/Thurs from 6 to 9 pm. 2 makeup sessions: Friday, 7/13 and Friday, 7/27

(May be continued on next page)

Textbooks:

Required  

Title: A Guide to the Project Management Body of Knowledge (PMBOK(R) Guide)  

Author(s): Project Management Institute  

Publisher:  

Additional Info: Members of PMI may get a free pdf version of the book

Lehigh Bookstore