

APPROVED

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FEB 15 2013

COLLEGE OF  
GRADUATE STUDIES

# The University Of Toledo

## New Graduate Course Proposal

\* denotes required fields

1. College\*: **College of Pharmacy**  
Department\*: **Medicinal and Biological Chemistry**
2. Contact Person\*: **Steven M. Peseckis**  
Phone: **530-1944**  
Email: **Steven.Peseckis@utoledo.edu**
3. Alpha/Numeric Code (Subject area - number)\*: **MBC 6450**
4. Proposed title\*: **Advanced Synthetic and Medicinal Chemistry**  
Proposed effective term\*: **201310**
5. Is the course cross-listed with another academic unit? **No**

Approval of other academic unit (signature and title)

Is this course offered at more than one level? Yes (MS and PhD, not undergraduate)

6. Credit hours\*: Fixed:   2   or Variable: From    to   

7.

Delivery Mode:	Primary*	Secondary	Tertiary
a. Activity Type *	Seminar		
b. Minimum Credit Hours *	2		
Maximum Credit Hours *	2		
c. Weekly Contact Hours *	2		

*Type Choices: Lecture, Recitation, Seminar, Regular Lab, Open Lab, Studio, Clinic, Field, Independent Study, Workshop, Web Assisted Instruction, Online, Other*

8. Terms offered: **Fall & Spring**  
Years offered: **Every Year**
9. Are students permitted to register for more than one section during a term? **No**  
May the courses be repeated for credit? **Yes** If yes: Maximum Hours **None**

10. Grading System\*: **Normal Grading (A-F, PS/NC, PR, I)**

- Choices: Normal Grading (A-F, PS/NC, PR, I)  
Passing Grade/No Credit (A-C, NC)  
Credit/No Credit  
Grade Only (A-F, PR, I)  
Audit Only  
No Grade

11. Prerequisites (must be taken before):

- a. **Admission to MS or PhD Program in Medicinal Chemistry or Permission of Instructor**

PIN (Permisson From Instructor)      PDP (Permission From Department)

Co-requisites (must be taken together):

- a. None

12. Catalog description\* (75 words Maximum)

**Readings in and critical analysis of recent literature in synthetic and medicinal chemistry research.**

13. Attach a syllabus of a complete outline of the major topics covered.

**Course Alpha Code, Number, Title, and Credit Hours**

**MBC 6450 Advanced Synthetic and Medicinal Chemistry      2 CHR**

**Course Approval:**

Department Curriculum Authority	<i>Katherine Ann Wall</i>	Date	<i>2/4/13</i>
Department Chairperson:	<i>Manuel Hernandez</i>	Date	<i>2/4/2013</i>
College Curriculum Authority or Chair:	<i>Deane Cappellotto</i>	Date	<i>2/4/13</i>
College Dean:	<i>Wayne P. Hoss</i>	Date	<i>2/4/2013</i>
Graduate Council:		Date	
Dean of Graduate Studies	<i>[Signature]</i>	Date	<i>3-19-13</i>
Office of the Provost :		Date	

**University of Toledo**

**Advanced Synthetic and Medicinal Chemistry  
MBC 6450/8450**

**Spring 2013  
Tuesday 2:00-4:00 PM, BO2850**

**SYLLABUS**

Instructors:	L.M.V. Tillekeratne, Ph.D.	Steven Peseckis, Ph.D.
Faculty Office:	WO 2023	WO 2209
Office Hours:	By appointment	By appointment
Phone:	419-530-1983	419-530-1944
E-Mails:	Liyanaaratchige.Tillekeratne@utoledo.edu	Steven.Peseckis@utoledo.edu

Instructors:	Paul Erhardt, Ph.D.	James Slama, Ph.D.
Faculty Office:	HEB 294D/WO 2206B	HEB 274E
Office Hours:	By appointment	By appointment
Phone:	419-383-2167/419-530-2167	419-383-1925
E-Mails:	Paul.Erhardt@utoledo.edu	James.Slama@utoledo.edu

**COURSE DESCRIPTION**

Readings in and critical analysis of recent literature in synthetic and medicinal chemistry research.

**COURSE PREREQUISITES**

Admission to the M.S. or Ph.D. Medicinal Chemistry Program or Permission of the Instructor.

**COMPETENCIES AND EXPECTED OUTCOMES**

- Proficiency in the analysis of literature associated with the synthesis of natural products.
- Increased expertise in the design and synthesis of medicinally relevant organic molecules.

## COURSE OBJECTIVES

- Identify current literature that employs novel synthetic strategies and reagents.
- Describe paper objectives, retrosynthetic rationale, and synthetic strategies.
- Rationalize formation of chemical products from starting materials and reagents employing chemical theory and experimental precedents.
- Highlight deviations from original synthetic plans citing reasons for plan failure, alternatives, and successful workarounds.
- Analyze chemical data to evaluate reaction efficiency (yield, yield basis, etc), selectivity (enantiomeric, regio, facial, kinetic, etc), sensitivity (steric, temperature, solvent, etc), and limitations (defining requirements, maximum tolerances).
- Evaluate structural data (nmr, x-ray, etc) and validity of stereochemical assignments.

*Note: Students in enrolled in the PhD course are expected to analyze literature, describe reaction mechanisms, and present at a higher level than those enrolled in the MS course.*

## REQUIRED TEXTBOOKS

None

## CLASSROOM PROCEDURES

### Course Structure

Graduate students will choose or be assigned a presentation date. Students will identify a current natural product synthesis paper, analyze it, prepare a powerpoint presentation with supporting materials, and present. Audience members will receive the paper in advance of presentation. The presenter is expected to explain in detail the synthetic plan, compound sources, chemical reactions, and relevant observations reported in the paper. During presentation, audience members are expected to ask questions and make comments. The presenter is expected to answer questions and moderate discussions prompted by the paper's content. The presenter is expected to be conversant on background material cited in the paper's reference section and supporting experimental materials. Graduate student presenter and participants will be graded by faculty based on the quality of the presentation for the presenter and of participation for those in the audience.

### Outside Readings / Ancillary Materials

This course will use primarily email to communicate.

### Policies on Presentations

Rescheduling of presentations will occur at the discretion of the instructor.

### Drop / Withdrawal

The petition for withdrawal must be received in the Office of the Registrar, Rocket Hall, Room 1100, by the deadline date either: in person, fax, or mail. When mailing, the envelope must be postmarked by the deadline date. For the **fall** and **spring** terms, it must be filed between the 15th calendar day of the term through Friday of calendar week 10.

**Academic Dishonesty**

Academic dishonesty **will not** be tolerated, and any student caught in this action will be dealt with according to the Policy Statement on Academic Dishonesty found in The University of Toledo General Catalog. The grade for the course will be reduced to an "F".

**Classroom Courtesy**

- The University has jurisdiction over any individual student, group of students or student organization alleged to have violated the Student Code of Conduct on the University of Toledo premises.
- Students must conduct themselves in a manner which is conducive to learning for themselves and others. Disruptive behaviors are not acceptable and may affect a student's final grade, or in severe cases result in a student being removed from class.