Course Syllabus

Course Identification:
Course Number: CH 4140
Course Name: Pharmaceutical Analysis
Course Location: 215 Chem Sci
Class Times: MWF 11:05am – 11:55am

Instructor Information:
Course Instructor: Dr Lanrong Bi
Office Location: 620A Chem Sc
Telephone: Office – (906)-487-1868
E-mail: Lanrong@mtu.edu
Office Hours: by appointment

Course Description/Overview:
Focuses on pharmaceuticals and pharmaceutical laboratory practices, providing a systematic introduction to the different applications of chemical analysis commonly used in the pharmaceutical industry. It will cover chemical analysis of drug substances, final pharmaceutical products, and biological fluids like blood and plasma, with a special emphasis on sample preparation and separation techniques.

Student learning goals:
The goal of this course is to provide students a systematic introduction to chemical analysis of pharmaceutical raw materials, finished pharmaceutical products, and of drugs in biological fluids, which are carried out in pharmaceutical laboratories worldwide. In addition, the students will learn the fundamentals of all the major analytical techniques used in the pharmaceutical laboratory. The course is also designed for analytical chemists moving into the field of pharmaceutical analysis. The students will learn the basic concepts and the foundations for the common analytical methods that are currently used in the quantitative and qualitative chemical analysis of pharmaceutical drugs.
Special topics:

- The first section focuses on an introduction to the chemical analysis of pharmaceuticals and teaches the basics of analytical chemistry and statistics;
- The second sections focuses on a variety of analytical techniques widely-used in the pharmaceutical laboratory.
- The third section involves how to use analytical techniques to analyze raw materials for pharmaceutical production, how to analyze finished pharmaceutical products, and how to analyze drug substances in biological fluids like urine and blood.

Grading System

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percentage</th>
<th>Grade points/credit</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90% &amp; above</td>
<td>4.00</td>
<td>Excellent</td>
</tr>
<tr>
<td>AB</td>
<td>85% – 89%</td>
<td>3.50</td>
<td>Very good</td>
</tr>
<tr>
<td>B</td>
<td>80% – 84%</td>
<td>3.00</td>
<td>Good</td>
</tr>
<tr>
<td>BC</td>
<td>75% – 79%</td>
<td>2.50</td>
<td>Above average</td>
</tr>
<tr>
<td>C</td>
<td>70% – 74%</td>
<td>2.00</td>
<td>Average</td>
</tr>
<tr>
<td>CD</td>
<td>65% – 69%</td>
<td>1.50</td>
<td>Below average</td>
</tr>
<tr>
<td>D</td>
<td>60% - 64%</td>
<td>1.00</td>
<td>Inferior</td>
</tr>
<tr>
<td>F</td>
<td>59% and below</td>
<td>0.00</td>
<td>Failure</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete; given only when a student is unable to complete a segment of the course because of circumstances beyond the student's control. A grade of incomplete may be given only when approved in writing by the department chair or school dean.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>Conditional, with no grade points per credit; given only when the student is at fault in failing to complete a minor segment of a course, but in the judgment of the instructor does not need to repeat the course. It must be made up within the next semester in residence or the grade becomes a failure (F). A (X) grade is computed into the grade point average as a (F) grade.</td>
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Requirements and methods of evaluation:
Your grade will be based on Oral Presentations (20%), Quiz (40%) and a Final Exam (40%).
**University Policies**

Academic regulations and procedures are governed by University policy. Academic dishonesty cases will be handled in accordance with the University's policies.

If you have a disability that could affect your performance in this class or that requires an accommodation under the Americans with Disabilities Act, please see me as soon as possible so that we can make appropriate arrangements. The Affirmative Action Office has asked that you be made aware of the following: *Michigan Tech complies with all federal and state laws and regulations regarding discrimination, including the Americans with Disabilities Act of 1990. If you have a disability and need a reasonable accommodation for equal access to education or services at Michigan Tech, please call the Dean of Students Office, at 487-2212. For other concerns about discrimination, you may contact your advisor, department head or the Affirmative Action Office, at 487-3310.*

**Academic Integrity:**
http://www.studentaffairs.mtu.edu/dean/judicial/policies/academic_integrity.html

**Affirmative Action:**
http://www.admin.mtu.edu/ao/

**Disability Services:**
http://www.admin.mtu.edu/urel/studenthandbook/student_services.html#disability

**Equal Opportunity Statement:**