Pharmaceutical Gene Delivery

3 Semester Credit Hours

Course Purpose:
The course will provide basic and the most advanced knowledge of pharmaceutical gene delivery.

Course Faculty and Office Hours
Course Coordinator:
Sihong Song
Email: shsong@ufl.edu     Office: P4-27, Health Science Center
Phone: 352-273-7867

Office Hours
Student can contact Dr. Song any time by email, phone call or walk in to his office.

Place and Time of Class Sessions
P4-20, HSC

How This Course Relates to the Learning Outcomes You Will Achieve in the Pharm.D. Program:
N/A, since this is a graduate course

Course Objectives

Upon completion of this course, the student will be able to:

1) Describe the basic technologies for pharmaceutical gene delivery.
2) Apply the advanced knowledge of gene deliveries for biomedical research projects.
3) Identify the challenges and barriers for the development of a novel gene drug.
4) Design proper experiments to test important hypothesis.
5) Analyze, interpret and present research results properly

Pre-Requisite Knowledge and Skills
Basic Molecular Biology and Cell Biology

Course Structure & Outline

Course Structure.

All class sessions are face-to-face and the student must complete some self-directed learning activities including searching and reading reference papers.

Course Outline/Activities. (see Appendix B).
Textbooks
No specific textbook is required.

Active Learning Requirements
Students are required to attend all the lectures, paper discussions and student presentations.

Student Evaluation & Grading
Evaluation Methods

1 open book examination (50 points). 1 student presentation (50 points)

Grading Scale
Based on UF grading system
(http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html)

- ≥90 A (4.0)
- ≥87, <90 A- (3.67)
- ≥83, <87 B+ (3.33)
- ≥80, <83 B (3.0)
- ≥77, <80 B- (2.67)
- ≥73, <77 C+ (2.33)
- ≥70, <73 C (2.0)
- ≥67, <70 C- (1.67)
- ≥63, <67 D+ (1.33)
- ≥60, <63 D (1.0)
- ≥57, <60 D- (0.67)
- <57 E (0)

Class Attendance Policy
Student is required to attend classroom lectures and activities

Quiz/Exam Policy
Students are required independently answer the open book question and prepare the student presentation.

Make-up Quiz/Exam Policy
Student may request for making up exam

Policy on Old Quizzes and Assignments
Not available.
Assignment Deadlines
N/A

General College of Pharmacy Course Policies
The College of Pharmacy has a website that lists course policies that are common to all courses. This website covers the following:

1. University Grading Policies
2. Academic Integrity Policy
3. How to request learning accommodations
4. Faculty and course evaluations
5. Student expectations in class
6. Discussion board policy
7. Email communications
8. Religious holidays
9. Counseling & student health
10. How to access services for student success

Please see the following URL for this information:

Complaints
Should you have any complaints with your experience in this course please visit:

http://www.distancelearning.ufl.edu/student-complaints to submit a complaint.
Appendix A: Directions for Contacting Faculty & Course Faculty List

Directions for Contacting Course Faculty
Contact Dr. Song for all related questions.

Course Coordinators
Sihong Song, Associate Professor, shsong@ufl.edu

Instructors
Contact Dr. Song for more information.
## Appendix B. Schedule of Course Activities/Topics

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Lecturer</th>
<th>Topics</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>1/8</td>
<td>Song</td>
<td>1. Review of Basic Molecular Biology and cell biology</td>
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<td></td>
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<td>2. Biotechnology</td>
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<td>3. Vector Designs</td>
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<tr>
<td>1</td>
<td>1/10</td>
<td>Song</td>
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<tr>
<td>2</td>
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<td>Song</td>
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<tr>
<td>2</td>
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<td>Song</td>
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<tr>
<td>3</td>
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<td>Song</td>
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<tr>
<td>3</td>
<td>1/24</td>
<td>Song</td>
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<tr>
<td>4</td>
<td>1/29</td>
<td>Song</td>
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<tr>
<td>4</td>
<td>1/31</td>
<td>Song</td>
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<tr>
<td>5</td>
<td>2/5</td>
<td>Lewin</td>
<td>Gene silencing technology: siRNA and Ribosyme</td>
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<tr>
<td>5</td>
<td>2/7</td>
<td>Lewin</td>
<td>Discussion</td>
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<tr>
<td>6</td>
<td>2/12</td>
<td>Muzyczka</td>
<td>AAV vector and its application</td>
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<td>2/14</td>
<td>Muzyczka</td>
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<td>2/19</td>
<td>Muzyczka</td>
<td>Adenovirus vector and its application</td>
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<td>2/21</td>
<td>Muzyczka</td>
<td>Discussion</td>
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<tr>
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<td>2/26</td>
<td>Bloom</td>
<td>HSV vector and its application</td>
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<td>2/28</td>
<td>Bloom</td>
<td>Discussion</td>
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<tr>
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<td>3/5</td>
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<td>Spring Break (March 5-12)</td>
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<td>Chang</td>
<td>Retrovirus, Lentivirus and their application</td>
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<td>Non-viral vector 2</td>
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<td>Stem cell based gene therapy</td>
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<td>Student Presentation</td>
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<tr>
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<td>4/25</td>
<td>No Class (End)</td>
<td>Reading days</td>
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