FLORIDA ATLANTIC UNIVERSITY

COURSE CHANGE REQUEST
Graduate Programs

Department Biomedical Science

College Medicine

UGPC Approval _____
UFS Approval _____
SCNS Submittal _____
Confirmed _____
Banner _____
Catalog _____

***Current* Course Prefix and Number**	***Current* Course Title**
GMS 6301	Macromolecules and Human Disease

*Syllabus must be attached for **ANY** changes to current course details. See Guidelines. Please consult and list departments that may be affected by the changes; attach documentation.*

Change title to:
Macromolecular therapy for human diseases

Change prefix

From: **To:**

Change course number

From: **To:**

Change credits*

From: **To:**

Change grading

From: **To:**

Academic Service Learning (ASL) **

Add ☐ **Remove** ☐

* Review Provost Memorandum
** Academic Service Learning statement must be indicated in syllabus and approval attached to this form.

Change description to:
Discussion of the molecular and cellular basis of human diseases and of the current status of therapeutic intervention for the specified diseases with focus on macromolecular therapy.

Change prerequisites/minimum grades to:
N/A

Change corequisites to:
N/A

Change registration controls to:
N/A

Please list existing and new pre/corequisites, specify AND or OR and include minimum passing grade.

Effective Term/Year for Changes:	**Terminate course? Effective Term/Year for Termination:**
Fall 2022	

Faculty Contact/Email/Phone Dr. Jang-Yen Wu jwu@health.fau.edu 561-297-0167; Dr. Prenticehprentic@health.fa

Approved by	***Date***
Department Chair Janet D Robishaw	1/22/2022
College Curriculum Chair Marc Kantorow	1/10/2022
College Dean	1/20/2022
UGPC Chair	
UGC Chair	
Graduate College Dean	
UFS President	
Provost	

Email this form and syllabus to UGPC@fau.edu 10 days before the UGPC meeting.

Course Syllabus – Fall, 2022

Safety Policy Related To COVID – 19:
All students in face-to-face classes are recommended/required to wear masks during class, and students must sanitize their own workstations upon entering the classroom. Taking these measures supports the safety and protection of the FAU community. Students who do not adhere to these rules will be asked to leave the classroom and/or be removed from the course. Students experiencing flu-like symptoms (fever, cough, shortness of breath), or students who have come in contact with an infected person should immediately contact FAU Student Health Services (561-297-3512)

1. Course title/number, number of credit hours:
Title/number: Macromolecular therapy for human diseases
Number of credit hours: 3

2. Course prerequisites, co-requisites
Basic Biology and Chemistry or Instructor's permission

3. Course logistics
a. **Term**: Fall Semester
b. **Class location and time**: TBD

4. Instructor contact information
Dr. Jang-Yen Wu: Rm 325 BC; E-mail: jwu@health.fau.edu; or jwu@fau.edu;
Telephone: 561-297-0167
Dr. Howard Prentice: Rm 225 BC; E-mail: hprentic@health.fau.edu
Telephone: 561-297-0362
Office hours**:** Scheduled by appointment only through E-Mail.

5. TA contact information: N/A

6. Course Catalog description
Discussion of the molecular and cellular basis of human diseases and of the current status of therapeutic intervention for the specified diseases with focus on macromolecular therapy.

More Course information: Specifically, the following areas will be covered: 1. Review of structure and function of macromolecules including protein, DNA and RNA; 2. Protein therapy including production of human proteins via recombinant DNA technology and application of protein therapy for human diseases such as insulin for diabetes, TPA for ischemic stroke, Erythropoietin (EPO) and Granulocyte - colony stimulating factor (**G-CSF**) for blood-related disorders. 3. Immuno therapy – poly-clonal vs. monoclonal antibodies (mAbs) therapy. Discussion on production and characterization of antibodies including production of mAbs by hybridomas and phage-displayed Ab libraries technology and its application in human diseases including cancer, autoimmune diseases and eye disease, etc. 4. DNA therapy including anti-sense and gene therapy. Discussion on design of anti-sense probes and gene vectors; delivery methods and application in human diseases including stroke, Alzheimer's disease and eye disease. 5. RNA therapy including mRNA-

based vaccine technology, microRNAs (miRNAs)-based therapeutics. 6. Combination therapy including combination of protein therapy and gene therapy as well as combination of conventional small molecule therapy with protein therapy or gene therapy.

7. Course objectives/student learning outcomes

The course objectives are listed as follows: 1. Basic knowledge of the structure and function of macromolecules including protein, DNA and RNA; 2. Mechanism of protein - , mAbs - , DNA -, gene - , and RNA – based therapeutics in human disease; 3. Future direction of macromolecular therapeutic intervention in human diseases. Students are expected to be equipped with knowledge to understand the underlying mechanism of macromolecular therapeutics currently available in clinical use or in clinical trial test. In addition, students are expected to develop future direction of therapeutic interventions for human diseases based on the mechanisms that they have learned from the lectures as well as from the literature discussion presented by students.

8. Course evaluation method

The overall course grade will be determined as follows:
First Exam – 20%
Second Exam – 20%
Final Exam - 20%
Literature Presentation/Discussion- 30%
Attendance and Participation--10%

*For undergraduate students, the overall course grade will be determined as follows:
First Exam – 30%
Second Exam – 30%
Final Exam -30%
Attendance and Participation--10%
A: 85 and above
B: 75 – 84
C: 65 -74
D: 55 -64
F: Below 55

Textbook Recommendations: No recommended textbooks, references, or review articles for their proposed course.

9. Attendance Policy

Students are expected to attend all of their scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance. Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations or participation in University-approved activities. Examples of University-approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances and debate activities. It is the student's responsibility to give the instructor notice prior to any anticipated absences and

absent for a University-approved reason the opportunity to make up work missed without any reduction in the student's final course grade as a direct result of such absence.

10. **Counseling and Psychological Services (CAPS) Center**
Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to http://www.fau.edu/counseling/

11. Classroom etiquette policy
In order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular telephones and pagers, are to be disabled in class sessions.

12. Disability policy statement and makeup tests
In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses – Boca Raton, Davie and Jupiter – however disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edu/sas/.

Makeup tests policy: Makeup tests and late work are not allowed but provision will be made for special unavoidable circumstances such as an approved physical problem or schedule conflicting with University-approved activities.

13. Code of Academic Integrity policy statement
Academic Honor Code:
Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see University Regulation 4.001. If your college has particular policies relating to cheating and plagiarism, state so here or provide a link to the full policy—but be sure the college policy does not conflict with the University Regulation.

14. Recommended texts/readings –N/A

15. Course topical outline, including dates for exams/quizzes

Date		Topic
Aug	23	Review of Macromolecules
Aug	30	Protein Therapy – Introduction, Preparation of Human Proteins
Sept	06	Labor Day (University Closed)
Sept	13	Protein Therapy I – Preparation and Application of Insulin, EPO
Sept	20	Protein Therapy II - Preparation and Application of TPA and G-CSF
Sept	27	Protein Therapy I + II - **First Exam;** Literature Discussion
Oct	04	Protein Therapy III- Immuno Therapy I Preparation and Application of Polyclonal antibodies
Oct	11	Protein Therapy IV- Immuno Therapy II Preparation and Application of mAb
Oct	25	DNA therapy I – **Second Exam** ; Gene therapy I
Nov	1	DNA Therapy II -Gene therapy II
Nov	8	DNA Therapy III – Anti-sense, DNA vaccine
Nov.	15	DNA Therapy + RNA Therapy
Nov	22	RNA Therapy II - Literature Discussion
Nov	29	Combination Therapy

FINAL EXAM TBD