Washington State University
MAJOR CURRICULAR CHANGE FORM - - COURSE
(Submit original signed form and ten copies to the Registrar’s Office, zip 1035.)

| Future Effective Date: 08/01/2012 | ☑ New course  ☐ Temporary course  ☐ Drop service course |
|-----------------------------------|-----------------|-----------------|-----------------|
| (effective date cannot be retroactive) | ☐ There is a course fee associated with this course (see instructions) |

☐ Variable credit _____________
☐ Increase credit (former credit ________)
☐ Number (former number ________)
☐ Crosslisting (between WSU departments) (Must have both departmental signatures)
☐ Conjoint listing (400/500)
☐ Request to meet Writing in the Major [M] requirement (Must have All-University Writing Committee Approval)
☐ Request to meet GER in ________ (Must have GenEd Committee Approval) ☑ Fulfills GER lab (L) requirement
☐ Professional course (Pharmacy & Vet Med only) ☑ Graduate credit (professional programs only)
☐ Other (please list request) _____________

<table>
<thead>
<tr>
<th>PharS course prefix</th>
<th>580</th>
<th>Gene and Stem Cell Therapies</th>
<th>title</th>
</tr>
</thead>
<tbody>
<tr>
<td>credit</td>
<td>lecture hrs</td>
<td>lab hrs</td>
<td>studio hrs</td>
</tr>
<tr>
<td>3</td>
<td>X</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Description (20 words or less) See attached

Instructor: Dr. Grant Trobridge  ☑ Phone number: 335-3573  ☑ Email: grant.trobridge@wsu.edu
Contact: Deb Howe  ☑ Phone number: 335-2227  ☑ Email: drhowe@wsu.edu
Campus Zip Code: 6510

- Please attach rationale for your request, a current and complete syllabus, and explain how this impacts other units in Pullman and other branches (if applicable).
- Secure all required signatures and provide 10 copies to the Registrar’s Office.

Chair/date  9/7/11  Dean/date  9/11/11  General Education Com/date
Chair (if crosslisted/interdisciplinary)*  Dean (if crosslisted/interdisciplinary) *  Graduate Studies Com/date

All-University Writing Com/date  Academic Affairs Com/date  Senate/date

*If the proposed change impacts or involves collaboration with other units, use the additional signature lines provided for each impacted unit and college.
This course will cover stem cell therapeutics, gene transfer vectors and methods for isolating/generating stem cells. The goals are to familiarize students to the field of stem cell therapeutics, to enhance presentation skills, and to improve the student’s ability to critically evaluate primary literature.
Course Title: Gene and Stem Cell Therapies  
Course Number: 580  
Credits: Three [3]  
Pre-Requisites: Admittance to Graduate School  
Instructor of Record: Grant Trobridge, PhD  
Course Time and Location: TBD  
Course Communication: WSU Spokane and Pullman use the Angel LMS (Learning Management System). If you have not used Angel before, please take a few minutes to become familiar with the system prior to the start of the semester. There is a short student orientation video on Angel at http://angel.wsu.edu/Tutorials/STudentOrientation/STudentOrientation.html

This course will cover stem cell therapeutics, gene transfer vectors and methods for isolating/generating stem cells. The goals are to familiarize students to the field of stem cell therapeutics, to enhance presentation skills, and to improve the student’s ability to critically evaluate primary literature.

At the end of this course, students will be able to:

- Describe assays used to define stem cells
- Understand the advantages and limitations of different gene transfer vectors
- Describe methods used to generate pluripotent stem cells
- Describe current approaches and progress in gene therapy
- Critically evaluate primary publications on stem cell therapeutics and gene therapy
- Present and discuss primary publications on stem cell therapeutics and gene therapy.
<table>
<thead>
<tr>
<th>Week 1</th>
<th>Overview and history of stem cells and ethics of stem cell research</th>
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<tbody>
<tr>
<td>Week 2</td>
<td>Hematopoietic stem cells I: in vitro assays and mouse models</td>
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<tr>
<td>Week 3</td>
<td>Hematopoietic stem cells II: transplantation</td>
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<tr>
<td>Week 4</td>
<td>Hematopoietic stem cells III: gene therapies</td>
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<td>Week 5</td>
<td>Viral vectors for gene therapy</td>
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<td>Week 6</td>
<td>Nonviral vectors for gene therapy</td>
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<tr>
<td>Week 7</td>
<td>Midterm exam</td>
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<td>Week 8</td>
<td>Genotoxicity of integrating vectors</td>
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<td>Week 9</td>
<td>Embryonic stem cells</td>
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<td>Week 10</td>
<td>Induced pluripotent stem cells I: methods for generation and assays for pluripotency</td>
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<tr>
<td>Week 11</td>
<td>Induced pluripotent stem cells II: applications for biology and regenerative medicine</td>
</tr>
<tr>
<td>Week 12</td>
<td>Student presentations, selected topics in gene and stem cell therapy: I</td>
</tr>
<tr>
<td>Week 13</td>
<td>Student presentations, selected topics in gene and stem cell therapy: II</td>
</tr>
<tr>
<td>Week 14</td>
<td>Muscle and liver gene and cell therapy</td>
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<td>Week 15</td>
<td>Cancer gene therapy</td>
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<tr>
<td>Week 16</td>
<td>Final exam</td>
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</tbody>
</table>

- Become familiar with therapeutic applications of stem cells
- Gain knowledge in gene transfer vector biology and applications
- Understand the methodology used to isolate/generate stem cells
- Understand therapeutic applications for different stem cell types
- Critically evaluate primary publications on stem cell therapeutics
- Present and discuss primary publications on stem cell therapeutics
- Professional behaviour is expected in the classroom at all times, and students
  behaving in an unprofessional manner will be asked to leave the classroom.

- Students can either download or print lecture materials posted on Angel by 5pm the
  previous day before each lecture when appropriate/available for that lecture.

- Students must present an in-class verbal presentation on a selected topic in gene
  and stem cell therapy. Following the presentation the student will be required to
  answer questions from other students and the instructor. The student is expected to
  demonstrate significant knowledge of the presented topic. This part of the course
  will test the ability of the student to critically evaluate primary literature and to
  present information in a clear and concise manner. This presentation is designed to
  1) assess the ability of the student to synthesize information from the course 2)
  improve skills for critically evaluating primary literature and 3) improve the skills
  required to present data at national/international scientific meetings.

- Students must take all exams during the scheduled time, and must give the student
  presentation on their scheduled date which will be provided by week 6. No early
  exams will be given. Should a student miss an exam for an EXCUSED reason, the test
  will be rescheduled during week 14, or at the discretion of the instructor. Should a
  student miss their scheduled presentation for an EXCUSED reason, the presentation
  will be rescheduled during week 14 or at the discretion of the instructor. An
  excused absence requires verbal or written approval from Dr. Trobridge prior
  to the exam/presentation. In other words, either leaving a voicemail or
  sending an email message is not an approval. Dr. Trobridge must reply and
  give consent prior to the assessment. Students who miss an exam/presentation
  without PRIOR approval will NOT be allowed to make up the exam/presentation
  and will receive a zero for that exam/presentation.

- Exam appeals: Students have the right to appeal any test item on the exams for re-
  grade. The exam must be submitted to Dr. Trobridge within one week after the
  return date. The exam must be accompanied by a typed, written explanation of
  the student's understanding of the correct answer and a justification for re-
  grading the test item. Oral explanations are not accepted (except for mathematical
  errors in point calculations). At the discretion of the instructor, the entire exam may
  be re-graded. All decisions of the instructor are final.

- Student presentation appeals: There will be no appeals for the student presentation
  with the exception of mathematical errors in point calculations.

- Students are expected to attain a cumulative passing score (>55%) on the exams
  and student presentation.
- Learning will be assessed via:
  - A written midterm exam that includes multiple choice questions.
  - A written final exam that includes multiple choice questions.
  - In-classroom evaluation of student presentation skills on a selected topic in gene and stem cell therapy. This will include instructor evaluation of nuanced critical & creative thinking and application.
  - The scoring breakdown for the student presentation will be:
    - 5% quality of presented slides
    - 5% ability of student to effectively communicate knowledge and concepts
    - 5% ability to demonstrate understanding of presented material
    - 5% ability to effectively answer questions

Any CODE violations that constitute an alleged violation in Washington State University's academic integrity standards will be handled directly by the Office of Student Conduct as set forth in “Procedure for academic integrity violations” (WAC 504-26-404). For detailed information on Academic Dishonesty definitions and procedures, see: http://www.conduct.wsu.edu/default.asp?PageID=343. To learn more about what might be considered plagiarism please see: http://www.wsulibs.wsu.edu/plagiarism/main.html

All students requesting reasonable accommodation must meet with the instructor prior to or during the first week of the course to review all proposed accommodations in relation to course content and requirements. Please note that written evaluations can be accommodated but performance evaluations are considered analogous to job skill performance, therefore expectations will not be adjusted.
Reasonable accommodations are available for students with a documented disability. If you have a disability and may need accommodations to fully participate in this class, please visit the Disability Resource Center (DRC). All accommodations MUST be approved through the DRC (Washington Bldg, 217). Please stop by or call 509-335-3417 to make an appointment with a disability specialist.
The WSU Campus Safety Plan, which can be found at http://safetyplan.wsu.edu, contains a comprehensive listing of university policies, procedures, statistics, and information relating to campus safety, emergency management, and the health and welfare of the campus community. Please visit this web site as well as the University emergency management web site at http://oem.wsu.edu/Emergencies to become familiar with the campus safety and emergency information provided. Everyone should also become familiar with the WSU ALERT site (http://alert.wsu.edu) where information about emergencies and other issues affecting WSU will be found. This site also provides information on the communication resources WSU will use to provide warning and notification during emergencies. It should be bookmarked on computers. **Finally, all faculty, staff, and students should go to the zzusis portal at http://zzusis.wsu.edu and register their emergency contact information for the Crisis Communication System (CCS).** Enter your network ID and password and you will be taken to the zzusis portal page. Look for the Pullman Emergency Information box on the left side of the page and click on Update Now to be taken to the registration page where you can enter your cell, landline, and email contact information as well as arrange for emergency text messages to be sent to your cell phone.
Mid-term exam: 40%
Final exam: 40%
Student presentation: 20%

Students can be assured the following grades by attaining the following cumulative scores:

<table>
<thead>
<tr>
<th>Percentage (%)</th>
<th>Grade</th>
</tr>
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<tbody>
<tr>
<td>85</td>
<td>A</td>
</tr>
<tr>
<td>80</td>
<td>A-</td>
</tr>
<tr>
<td>75</td>
<td>B+</td>
</tr>
<tr>
<td>70</td>
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<tr>
<td>60</td>
<td>C+</td>
</tr>
<tr>
<td>55</td>
<td>C</td>
</tr>
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Less than 55%: F