# Course Change Request

## New Course Proposal

**Viewing:** CVEN 749: Advanced Visualization and Building Information Modeling in Structural Engineering Design

**Last edit:** 05/14/18 3:44 pm

Changes proposed by: kbrumbelow

### Faculty Senate Number

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kelly Brumbelow</td>
<td><a href="mailto:kbrumbelow@civil.tamu.edu">kbrumbelow@civil.tamu.edu</a></td>
<td>979-862-7633</td>
</tr>
</tbody>
</table>

**Course prefix:** CVEN  
**Course number:** 749

**Department:** Civil Engineering  
**College/School:** College of Engineering  
**Academic Level:** Graduate  
**Academic Level (alternate):** Undergraduate

**Effective term:** 2019-2020

**Complete Course Title:** Advanced Visualization and Building Information Modeling in Structural Engineering Design

**Abbreviated Course Title:** ADV VIS & BIM IN STR ENG DESG

**Catalog course description:**

Graphical communication in the structural engineering design process; introduction to Building Information Modeling (BIM); construction documents and contract drawings in structural engineering applications, data analysis and project visualization.

**Prerequisites and Restrictions:**

Graduate classification.

**Concurrent Enrollment:** No

**Should catalog prerequisites / concurrent enrollment be enforced?** No

**Crosslistings:** No  
**Crosslisted With:**

- CVEN 449 - Visualization and Building Information Modeling in Structural Engineering Design

**Stacked:** Yes  
**Stacked with:**

CVEN 449 - Visualization and Building Information Modeling in Structural Engineering Design

**Semester:** 1  
**Contact Hour(s):** 1  
**Lecture:** 1  
**Lab:** 0  
**Other:** 0  
**Total:** 1

**Repeatable for credit?** No

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### In Workflow

1. CVEN Department Head
2. Curricular Services Review
3. EN Committee Preparer GR
4. EN Committee Chair GR
5. EN College Dean GR
6. GC Preparer
7. GC Chair
8. Faculty Senate Preparer
9. Faculty Senate
10. Provost II
11. President
12. Curricular Services
13. Banner

### Approval Path

1. 05/11/18 4:28 pm  
Kelly Brumbelow (kbrumbelow): Approved for CVEN Department Head

2. 05/14/18 3:44 pm  
Terra Bisse (t.bisse): Approved for Curricular Services Review

3. 06/14/18 4:51 pm  
Jennifer Veracruz (jveracruz): Approved for EN Committee Preparer GR

4. 06/28/18 5:35 pm  
Harry Hogan (h-hogan): Approved for EN Committee Chair GR

5. 06/28/18 5:36 pm  
Harry Hogan (h-hogan): Approved for EN College Dean GR

6. 07/03/18 8:40 am  
LaRhesa Johnson (lrjohnson): Approved for GC Preparer

7. 07/20/18 4:23 pm  
LaRhesa Johnson (lrjohnson): Approved for GC Chair
### Three-peat?
No

### CIP/Fund Code
1408010006

### Default Grade Mode
Letter Grade (G)

### Alternate Grade Modes
Satisfactory/Unsatisfactory

### Method of instruction
Lecture

### Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education)
No

### Will this course be taught as a distance education course?
No

### Is 100% of this course going to be taught in Texas?
Yes

### Will classroom space be needed for this course?
Yes

This will be a required course or an elective course for the following programs:

**Required (select program)**

**Elective (select program)**

---

### Course Syllabus

**Syllabus:**
Use course syllabus form

**Meeting times and locations**
T 5:30-6:20; HEB 217

**Learning outcomes**

<table>
<thead>
<tr>
<th>Learning Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create structural engineering drawings according to conventional practices and standards.</td>
</tr>
<tr>
<td>Demonstrate techniques in computer-aided design using Building Information Modeling (BIM) software.</td>
</tr>
<tr>
<td>Demonstrate the use of creative design skills to solve ill-defined problems.</td>
</tr>
<tr>
<td>Demonstrate the ability to create written documents related to typical structural engineering work environment.</td>
</tr>
<tr>
<td>Demonstrate basic visualization techniques appropriate to structural engineering projects.</td>
</tr>
</tbody>
</table>

**Instructor information**

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone</th>
<th>E-mail</th>
<th>Office hours</th>
<th>Office location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jeffrey M. Otey</td>
<td>979-845-1648</td>
<td><a href="mailto:j-otey@tamu.edu">j-otey@tamu.edu</a></td>
<td>MWF 9:00-10:00</td>
<td>DLEB 213</td>
</tr>
</tbody>
</table>

**Textbook and/or Resource Material**
ASCENT. Autodesk® Revit 2018 Structure Fundamentals. SDC Publications.

**Grading scale**
Grade Ranges: A: 90-100%, B: 80-89.99%, C: 70-79.99%, D: 60-69.99%, F: <59.99%
### Attendance and Make-up Policies

University rules related to excused and unexcused absences are located on-line at Student Rule 7.

Attendance and class participation is mandatory. Students are expected to complete the reading assignments before class and to come to class prepared to discuss that lecture’s specific topic. Students are expected to remain engaged with the instructor and to display professional behavior in respect to electronic devices. Excused absences will be defined and handled in accordance with TAMU Student Rule 7 (http://student-rules.tamu.edu/rule07).

### Course Topics, Calendar of Activities, Major Assignment Dates

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Required readings</th>
<th>Assignment due date</th>
<th>Major exam date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction to Revit; Draw and modify tools</td>
<td>ASCENT Chap 1 &amp; 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Structural projects</td>
<td>ASCENT Chap 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Grids and columns</td>
<td>ASCENT Chap 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Foundations</td>
<td>ASCENT Chap 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Framing</td>
<td>ASCENT Chap 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Working with views</td>
<td>ASCENT Chap 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Slabs</td>
<td>ASCENT Chap 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Structural reinforcement</td>
<td>ASCENT Chap 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Concrete</td>
<td>ASCENT Chap 11</td>
<td></td>
<td></td>
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<tr>
<td>10</td>
<td>Construction documents</td>
<td>ASCENT Chap 12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Annotations</td>
<td>ASCENT Chap 13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Detail views and scheduling</td>
<td>ASCENT Chap 14 &amp; 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Artistic tools and walkthroughs</td>
<td>N/A</td>
<td>Design project</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Introduction to Dynamo</td>
<td>N/A</td>
<td></td>
<td>Final exam</td>
</tr>
</tbody>
</table>

Please select the appropriate ADA statement for your location:

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.

Academic Integrity

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”
For additional information please visit: http://aggiehonor.tamu.edu

https://nextcatalog.tamu.edu/courseleaf/approve/?role=Faculty%20Senate
<table>
<thead>
<tr>
<th>Letters of support or other documentation</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional information</td>
<td></td>
</tr>
<tr>
<td>Reviewer Comments</td>
<td>Terra Bissett (t.bissett) (05/14/18 3:44 pm): Minor edits made to form.</td>
</tr>
<tr>
<td>Reported to state?</td>
<td></td>
</tr>
</tbody>
</table>
Course Change Request

New Course Proposal

Date Submitted: 06/14/18 6:44 pm

Viewing: ENGR 667: Project Management for Engineers

Last edit: 06/14/18 6:44 pm

Changes proposed by: rthomassie

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rachal Thomassie</td>
<td><a href="mailto:rthomassie@tamu.edu">rthomassie@tamu.edu</a></td>
<td>979-845-7200</td>
</tr>
</tbody>
</table>

Course prefix: ENGR  
Course number: 667

Department: College of Engineering
College/School: College of Engineering
Academic Level: Graduate
Effective term: 2019-2020

Complete Course Title: Project Management for Engineers
Abbreviated Course Title: PROJECT MGMT ENGR

Catalog course description:
An introduction to project management for engineers of all disciplines; principles of managing projects throughout their lifecycle, from the identification of needs to the completion and closing stage; emphasis on the project management process and associated tools and techniques.

Prerequisites and Restrictions:
Graduate classification in engineering and approval of instructor.

Should catalog prerequisites / concurrent enrollment be enforced? No

Crosslistings: No  
Crosslisted With: No

Stacked: No  
Stacked with: No

Semester: 3  
Credit Hour(s): 3  
Contact Hour(s): 3  
Lecture: Total 3  
Lab: 0  
Other: 0

Repeatable for credit? No
CIP/Fund Code: 1401010006
Default Grade Mode: Letter Grade (G)
Method of instruction: Lecture
Will sections of this course be taught as non-traditional? (i.e.,...

In Workflow
1. CLEN Department Head
2. Curricular Services Review
3. EN Committee Preparer GR
4. EN Committee Chair GR
5. EN College Dean GR
6. GC Preparer GR
7. GC Chair
8. Faculty Senate Preparer GR
9. Faculty Senate GR
10. Provost II
11. President
12. Curricular Services
13. Banner

Approval Path
1. 06/11/18 1:57 pm  
   Tim Jacobs (tjjacobs): Rollback to Initiator
2. 06/11/18 9:22 pm  
   Tim Jacobs (tjjacobs): Approved for CLEN Department Head
3. 06/13/18 4:50 pm  
   Terra Bissett (t.bissett): Rollback to Initiator
4. 06/13/18 9:46 pm  
   Tim Jacobs (tjjacobs): Approved for CLEN Department Head
5. 06/14/18 9:29 am  
   Terra Bissett (t.bissett): Rollback to Initiator
6. 06/19/18 4:06 pm  
   Tim Jacobs (tjjacobs): Approved for CLEN Department Head
7. 06/20/18 8:21 am  
   Terra Bissett (t.bissett): Approved for Curricular Services Review
8. 07/11/18 2:27 pm  
   Jennifer Veracruz (jveracruz): Approved for EN Committee Preparer GR
9. 07/24/18 4:47 pm  
   Harry Hogan (h-hogan): Approved for EN Committee Chair GR
10. 07/24/18 4:48 pm  
    Harry Hogan (h-hogan): Approved for EN College Dean GR

https://nextcatalog.tamu.edu/courseleaf/approve/?role=Faculty%20Senate
Learning Outcomes

Meets traditional face-to-face learning outcomes.

Describe how learning outcomes are met or provide justification why they are not met.

Learning outcomes are met through course assignments and student assessment.

Hours

Meets traditional face-to-face hours.

Describe how hours are met or provide justification why they are not met.

Hours are met by video-recorded lecture.

Will this course be taught as a distance education course?

Yes

I verify that I have reviewed the FAQ for Export Control Basics for Distance Education.

Yes

Is 100% of this course going to be taught in Texas?

Yes

Will classroom space be needed for this course?

No

This will be a required course or an elective course for the following programs:

Required (select program)

Elective (select program)

Course Syllabus

Syllabus:

Upload syllabus

Upload syllabus

ENGR 667 Syllabus.doc

Letters of support or other documentation

No

Additional information

Course will be part of a new graduate certificate in Engineering Project Management.

Reviewer Comments

Tim Jacobs (tjjacobs) (06/11/18 1:57 pm): Rollback: Hi Rachal, please update with the correct syllabus. Thank you. Take care, Tim

Terra Bissett (t.bissett) (06/13/18 4:48 pm): Minor edits made to form.

Terra Bissett (t.bissett) (06/13/18 4:50 pm): Rollback: Syllabus: please include link to student rule 7.

Terra Bissett (t.bissett) (06/14/18 9:29 am): Rollback: Syllabus: Please correct link to student rule 7 to read as http://student-rules.tamu.edu/rule07

Terra Bissett (t.bissett) (06/20/18 8:20 am): Updates received.
Course title and number: ENGR 667: Project Management for Engineers
Term (e.g., Fall 200X): Summer 2019
Meeting times and location: TBA

Course Description and Prerequisites

This course provides a general introduction to project management for engineers of all disciplines. The content of this course covers key principles of managing projects throughout their life-cycle, from the identification of needs to the completion and closing stage. Primary emphasis is on the project management process and associated tools and techniques. Key topics to be discussed during the semester include:

- Project life cycle (conceptualization and initiation, pre-planning and planning, execution and control, close-out and delivery)
- Activities and tools commonly used in each phase
- Project cost and time management, including work breakdown structures, cost estimation, and project networks
- Evaluation of technical and business risks associated with project cost, time, and performance
- Project progress measurement, change management, and integrated cost and time control (earned value management system)
- Organizational project management

Prerequisites: Upper-level classification in engineering and permission of the instructor.

Learning Outcomes or Course Objectives

This course is to help students gain project management experience and knowledge and also to prepare them to work effectively in project organizations and with multi-disciplinary project teams. Course material will provide help students understand the concepts and use tools available to manage and administer projects. This class will also provide the foundation for further study in project management. Students completing this course should be able to perform the duties of a project manager for engineering projects, including:

- Understand the nature of projects and the goals of project management.
- Prepare Statements of Work and Work Breakdown Structures.
- Understand the management of project scope, quality, cost, and schedule.
- Schedule projects using networks and critical path methods.
- Understand and assess project uncertainties and actively manage risks.
- Measure and evaluate project progress using Earned Value methods.

Instructor Information

Name: Vahid Faghihi, PhD
Telephone number: (979) 862-5187
Email address: savafa@tamu.edu
Office hours: TBA
Office location: DLEB 808H

Textbook and/or Resource Material

SUPPLEMENTARY MATERIAL
  Available online through TAMU library at: http://proquest.safaribooksonline.com/9781935589679

Grading Policies

Students are expected to participate actively in class discussions and/or activities. Completion of case studies is required to build proficiency and understanding. Reading assignments will be made from the assigned text, from class handouts, and from other sources. The following grade breakdown will be used for this class:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments</td>
<td>20%</td>
</tr>
<tr>
<td>Class Participations</td>
<td>10%</td>
</tr>
<tr>
<td>Short Case Studies</td>
<td>10%</td>
</tr>
<tr>
<td>Mid-Term Examination</td>
<td>15%</td>
</tr>
<tr>
<td>Final Examination</td>
<td>25%</td>
</tr>
<tr>
<td>Term Project</td>
<td>20%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

CASE STUDIES

Students will be assigned to groups by the instructor. Each team will be responsible for conducting one small case study and one comprehensive case study. The topic of each case study will be assigned by the instructor at least two weeks before the due date. All team members will be equally responsible for the material contained in the submittals. Students will have an opportunity to reflect on and assess the participation of each team member in team assignments. Team evaluations affect grades. Assessments and any comments students make to the instructor are confidential. Below is more information about the case studies for this class:

<table>
<thead>
<tr>
<th>Small Case Study</th>
<th>Comprehensive Case Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Students will be assigned to teams of 3-4</td>
<td>- Students will be reassigned to teams of 5-6 students.</td>
</tr>
<tr>
<td>- Case studies will be assigned from the textbook.</td>
<td>- Description of the case and study questions will be provided by the instructor.</td>
</tr>
<tr>
<td>- The team will submit their short answers to the study questions.</td>
<td>- The groups will conduct the case study and will explain the Case.</td>
</tr>
<tr>
<td>- The student group responsible for presenting the study will synthesize student responses and submit a summary report (1-2 pages). The report is due with the oral presentations.</td>
<td>- The team will submit a written report paper</td>
</tr>
</tbody>
</table>

All materials, information, or advice used in the preparation of any submittal must be cited in the submittal using the Chicago Manual of Style format (http://library.tamu.edu/help/help-yourself/citing-...).
It is essential that each submittal identify and give credit for the work of others when it is used.

**HOMEWORK ASSIGNMENTS**
Assignments are always due before class on the due date. Assignments are graded on a scale of 0 to 100. Assignments are open-book, open-note unless otherwise specified. Late submissions within 24 hours will get half of the total credit. Submittals received more than 24 hours after the due date and time will receive no credit. Schedule adjustments for submittal deadlines and examinations for individuals are rarely granted. Requests for extensions of assignment submission deadlines or the rescheduling of an examination must be made in writing (no e-mail) at least 48 hours before the deadline or exam.

**EXAMS**
Examinations are closed book, closed notes. Calculators are allowed given that you haven’t programmed them with notes. The final examination will be comprehensive. The other two examinations will cover part of the class material. Both qualitative and quantitative elements will be tested. Make-up exams will be offered only for University approved absences approved well in advance of the exam.

**READING ASSIGNMENTS AND CLASS PREPARATION**
Reading assignments should be completed prior to the class for which they are assigned. Class attendance and participation will affect your grade.

**GUIDELINES FOR SUBMISSION OF ASSIGNMENTS AND PROJECTS**
All assignments and term papers should conform to the following guidelines unless specifically advised otherwise. If these guidelines are unclear, ask the instructor for clarification. Nothing in these guidelines should be construed to be contrary to official Texas A&M policies or to supersede official Texas A&M policies.

Assignments and term papers are due at the beginning of class on the due date specified. Late assignments will be accepted only by prior arrangement with the instructor. University rules on excused absences will be followed (Student Rule 7: [http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07)). Late term projects will be marked down one letter grade unless prior arrangement with the instructor has been made. Submittals are like bids, in that they are due on the date and time specified, and extensions are rarely given. Extensions will be granted only for circumstances beyond the student's control. E-mail submittals will not be accepted except by prior arrangement and extenuating circumstances.

It is your responsibility to understand the assignment (what is expected, due date, objectives, criteria for evaluation, etc.) before you hand in the finished product and in time to prepare your submittal by the deadline. Read and start on assignments early enough to provide adequate time for questions to the instructor and to your teammates.

Submittals are like engineering reports: they must be in hard copy, printed, spell-checked, and checked for accuracy by all team members. Neatness, grammar, and spelling do count in all engineering work.

Questions about the grading of assignments should be addressed to the instructor within one week of receiving the grade, or before the last class meeting, whichever comes first. If, after understanding the basis for the grade assigned, you feel that you have provided what is asked for but have not received appropriate credit, write a letter to the instructor specifically pointing out these occurrences and documenting your position, and submit it with the unchanged submittal to the instructor. The instructor will then review the grading and contact you.

Format Submittals should be organized like (brief) engineering studies or reports. **Identify all assumptions made and the sources of all technical information.** Identify the answers clearly. Text must be printed or typed, not handwritten, in 12 point type and 1 1/2-line spacing. Necessary handwritten material such as graphs and drawings should be large and printed legibly. Provide all team members' names, assignment title, and date at the top of the first page. Number the pages.
Diagrams: Insert diagrams, equations, graphs, etc. into the text near where they are referenced. Cite any supporting material in the text and collect it in appendices.

Summary: Effective communication is essential for success in engineering and construction. Developing that skill requires practice. Be brief, concise, and to the point. Use the spell-checker on the word processor. In the case of team work, every team member should proofread and approve the final document before submittal.

**Grading Scale**

The grade for each student will be determined according to the following scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90 – 100</td>
<td>Excellent performance on all work, excellent class participation</td>
</tr>
<tr>
<td>B</td>
<td>80 – 89</td>
<td>Good performance on all work, excellent performance on portions of the work during the semester, good class participation.</td>
</tr>
<tr>
<td>C</td>
<td>70 – 79</td>
<td>Satisfactory completion of all work, good performance on some work, satisfactory class participation.</td>
</tr>
<tr>
<td>D</td>
<td>60 – 69</td>
<td>A passing effort however score is below average for the class, class participation was below average.</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 60</td>
<td>Unsatisfactory performance, not a passing grade.</td>
</tr>
</tbody>
</table>

Grades will not be curved. However, the minimum score needed to get a specific grade may be lowered at the discretion of the instructor. It will not be raised.

**Course Topics, Calendar of Activities, Major Assignment Dates**

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Required Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; Session</td>
<td>Intro &amp; Chapter 1 (HW1 due)</td>
</tr>
<tr>
<td></td>
<td>- Course Intro</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt; Session</td>
<td>Chapters 2 (HW2 Due)</td>
</tr>
<tr>
<td></td>
<td>- Project Management Concepts</td>
<td></td>
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<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt; Session</td>
<td></td>
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<tr>
<td></td>
<td>- Systems Approach and Systems Engineering</td>
<td></td>
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<tr>
<td></td>
<td>- Systems Development</td>
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<tr>
<td>2</td>
<td>4&lt;sup&gt;th&lt;/sup&gt; Session</td>
<td>Chapters 3</td>
</tr>
<tr>
<td></td>
<td>- Project Conception</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5&lt;sup&gt;th&lt;/sup&gt; Session</td>
<td>Chapter 4</td>
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<tr>
<td></td>
<td>- Project and Systems Definition</td>
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<tr>
<td></td>
<td>6&lt;sup&gt;th&lt;/sup&gt; Session</td>
<td>Chapter 5</td>
</tr>
<tr>
<td></td>
<td>- Planning Fundamentals – Part I</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>7&lt;sup&gt;th&lt;/sup&gt; Session</td>
<td>Chapter 5 (HW3 due)</td>
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<tr>
<td></td>
<td>* Small Case Study Presentations</td>
<td></td>
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<tr>
<td></td>
<td>8&lt;sup&gt;th&lt;/sup&gt; Session</td>
<td></td>
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<tr>
<td></td>
<td>- Planning Fundamentals – Part II</td>
<td></td>
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<tr>
<td></td>
<td>9&lt;sup&gt;th&lt;/sup&gt; Session</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Small Case Study Presentations</td>
<td></td>
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<tr>
<td>4</td>
<td>10&lt;sup&gt;th&lt;/sup&gt; Session</td>
<td>Chapter 6</td>
</tr>
<tr>
<td></td>
<td>- Project Time Planning and Networks – Part I</td>
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<tr>
<td></td>
<td>11&lt;sup&gt;th&lt;/sup&gt; Session</td>
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<tr>
<td></td>
<td>* Small Case Study Presentations</td>
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<td>12&lt;sup&gt;th&lt;/sup&gt; Session</td>
<td>Chapter 6</td>
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<tr>
<td></td>
<td>- Project Time Planning and Networks – Part</td>
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<tr>
<td>Session</td>
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<tr>
<td>5</td>
<td>13th</td>
<td>Advanced Project Network Analyses and Scheduling – Part I</td>
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<td>14th</td>
<td>Advanced Project Network Analyses and Scheduling – Part II</td>
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<td>* Mid-Term Examination</td>
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<td>Review Mid-Term &amp; Presentation Comments</td>
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<td>Cost Estimating and Budgeting – Part I</td>
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<td>Cost Estimating and Budgeting – Part II</td>
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<td>Managing Risks in Projects – Part I</td>
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<td>Project Execution and Control – Part I</td>
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<td>Project Selection and Portfolio Management</td>
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**Americans with Disabilities Act (ADA)**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit [http://disability.tamu.edu](http://disability.tamu.edu).

**Academic Integrity**

For additional information please visit: [http://aggiehonor.tamu.edu](http://aggiehonor.tamu.edu)

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”
## Course Change Request

### New Course Proposal

**Date Submitted:** 06/15/18 1:45 pm  
**Viewing:** **FINC 653**: Maroon Fund Investments and Venture Capital

**Last edit:** 06/22/18 4:19 pm  
Changes proposed by: laurenwelford

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<tr>
<td></td>
<td>Lauren Welford</td>
<td><a href="mailto:lwelford@mays.tamu.edu">lwelford@mays.tamu.edu</a></td>
<td>9798623738</td>
</tr>
</tbody>
</table>

**Course prefix**: FINC  
**Course number**: 653

- **Department**: Finance  
- **College/School**: Mays Business School  
- **Academic Level**: Graduate  
- **Academic Level (alternate)**: Undergraduate  
- **Effective term**: 2019-2020  
- **Complete Course Title**: Maroon Fund Investments and Venture Capital  
- **Abbreviated Course Title**: MAROON FUND INV & VENTURE CAP

**Catalog course description**
- Exploration of angel investing and venture capital markets, including assessment of potential investments, analysis of performance of portfolio companies, due diligence, deal structuring, research and investor relations.

- **Prerequisites and Restrictions**: Approval of instructor.
- **Concurrent Enrollment**: No  
- **Should catalog prerequisites / concurrent enrollment be enforced?**: No  
- **Crosslistings**: No  
- **Stacked**: No

**Semester Credit Hour(s)**
- **Contact Hour(s)**: 1-3  
- **Lecture**: 1-3  
- **Lab**: 0  
- **Other**: 0  
- **Total**: 1-3

**Repeatable for credit?** Yes  
**Number of times repeated for credit** - OR -  
**Maximum number of hours** 3  
**When will this course be repeated?** Within a student's career

---

**In Workflow**

- FINC Department Head
- Curricular Services Review
- BA Committee Preparer GR
- BA Committee Chair GR
- BA College Dean GR
- GC Preparer
- GC Chair
- Faculty Senate Preparer
- Provost II
- President
- Curricular Services
- Banner

**Approval Path**

1. **06/16/18 8:43 am** Richard Dye (tdye): Approved for FINC Department Head  
2. **06/22/18 4:21 pm**  
   - Terra Bissett (t.bissett): Approved for Curricular Services Review  
   - Angela Catlin (acatlin): Approved for BA Committee Preparer GR  
3. **06/22/18 4:22 pm**  
   - Michael Shaub (mshaub): Approved for BA Committee Chair GR  
4. **06/22/18 9:35 pm**  
   - Michael Kinney (kinneym): Approved for BA College Dean GR  
5. **07/05/18 12:16 pm**  
   - Meagan Kelly (meagankelly): Approved for GC Preparer  
6. **07/31/18 12:51 pm**  
   - LaRhesa Johnson (lrjohnson): Approved for GC Chair  
7. **08/13/18 3:05 pm**  

[https://nextcatalog.tamu.edu/courseleaf/approve/?role=Faculty%20Senate](https://nextcatalog.tamu.edu/courseleaf/approve/?role=Faculty%20Senate)
Three-peat? Yes
CIP/Fund Code 5208070016
Default Grade Mode Letter Grade (G)
Alternate Grade Modes Satisfactory/Unsatisfactory
Method of instruction Lecture
Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education) No
Will this course be taught as a distance education course? No
Is 100% of this course going to be taught in Texas? Yes
Will classroom space be needed for this course? Yes

This will be a required course or an elective course for the following programs:

Required (select program)

Elective (select program)

<table>
<thead>
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<th>Program(s)</th>
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<tbody>
<tr>
<td>(MFM-FINM) Master of Financial Management in Financial Management</td>
</tr>
<tr>
<td>(MBA-BUAD) Master of Business Administration in Business Administration</td>
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<tr>
<td>(MS-FINC) Master of Science in Finance</td>
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</table>

Course Syllabus

Syllabus: Upload syllabus
 Upload syllabus Maroon Fund FINC 653 602 fall 2018.pdf

Letters of support or other documentation No
Additional information

Reviewer Comments
Richard Dye (tdye) (09/27/17 12:43 pm): Typo in course title, "capital" should be "capital"
Richard Dye (tdye) (09/27/17 12:46 pm): For abbreviated course title, let's just use "Maroon Fund" (i.e., drop "The").
Richard Dye (tdye) (09/27/17 12:49 pm): I think semester credit hours should be 1-3. I know most students take it in a 1-2 or 2-1 pattern. Would you please check with Ed to see if anyone ever needs a 3-0 or 0-3 pattern? If we leave variable 1 to 2, then it guarantees that people will have to take it two different semesters to get 3 credits. We just want to be sure this is what we want to require for ALL students.
Richard Dye (tdye) (09/27/17 12:50 pm): CIP code should be 5208070016.
Richard Dye (tdye) (10/25/17 3:08 pm): Please correct typo in course title (capital instead of capital).
Richard Dye (tdye) (10/25/17 3:10 pm): CIP code for FINC 653 should match CIP code for corresponding undergraduate section: 5208070016
Richard Dye (tdye) (10/25/17 3:11 pm): Semester credit hours are still listed as 1-2. Shouldn't it be 1-3?
Richard Dye (tdye) (10/25/17 3:11 pm): Let's change the catalog description to match that of the undergrad
section: Exploration of angel investing and venture capital markets, including assessment of potential investments, analysis of performance of portfolio companies, due diligence, deal structuring and research, and investor relations.

Richard Dye (tdye) (10/25/17 3:14 pm): The prerequisites listed in CARS do not match the prerequisites listed in the syllabus. I suggest changing the syllabus prereqs to "Approval of instructor."

Richard Dye (tdye) (10/25/17 3:14 pm): Change the abbreviated course title from "The Maroon Fund" to just "Maroon Fund".


Richard Dye (tdye) (10/31/17 7:45 am): Rollback: Since the credit hours are 1-3, shouldn’t lecture hours per week also be 1-3? That’s the way we did it for the undergrad section.

Sandra Williams (sandra-williams) (11/07/17 7:16 pm): Rollback: Syllabus weekly schedule missing; attendance/make-up/late-work policy missing including link to student rule 7; missing grade weights and grading scale.

Sandra Williams (sandra-williams) (05/01/18 2:50 pm): Rollback: Previous comments not addressed: syllabus missing weekly schedule; missing link to student rule 7.

Terra Bissett (t.bissett) (06/19/18 9:30 am): Comments addressed.

Terra Bissett (t.bissett) (06/22/18 4:19 pm): Updates made to form and repeatability section.

Terra Bissett (t.bissett) (06/22/18 4:21 pm): This course appears to be stacked (FINC 453).

Reported to state?

Add
FINC 653.602 – Maroon Fund  
Syllabus – Fall 2018

INSTRUCTOR: Ed White
CONTACT: ecwhite@mays.tamu.edu
OFFICE: Wehner 351E
OFFICE HOURS: by appointment

CLASS TIMES AND LOCATIONS:
- Section 502: Tue/Thu  3:00 – 5:00pm  Suite 150, 1700 Research Parkway
- Section 602: Tue/Thu  3:00 – 5:00pm  Suite 150, 1700 Research Parkway

MATERIALS:
- Angel Investing, David S. Rose, Wiley & Son, Inc., 2014
- Advanced Berkonomics, Dave Berkus, David W. Berkus, 2011
- Recommended reading: The Wall Street Journal and subscription available via WSJ.com/studentoffer
- Recommended website: http://seekingalpha.com

PREREQUISITES:
The course does not have prerequisites. Rather, students apply for the class and they are accepted based on various factors such as academic record, interviews and recommendations in addition to the following requirements:

- Minimum recommended GPA of 3.5.
- Full-time Texas A&M University student and in good standing with the University
- Attended Texas A&M University for at least one full academic year
- Commit to attend Maroon Fund for two semesters

COURSE DESCRIPTION:

The Maroon Fund is a two semester course focused on angel investing. The Maroon Fund initially began in November 2013 with the idea of Texas A&M students managing a live angel capital fund with the guidance of Research Valley Funds Portfolio Manager, James Lancaster. The Maroon Fund encompasses three teams, all of which are a vital piece of the puzzle in terms of the overall success of the fund. The three teams of the Maroon Fund include Investor Relations, Deal Research, and Technology/Intellectual Property. This Maroon Fund is first-hand exposure to the world of angel investment and venture capital.

The course actively searches for student associates interested in an entrepreneurial start-up experience with an inside view. Students should be internally motivated, great problem solvers, and intellectually curious. Course credit is variable, i.e. semester credit maybe either one or two credit hours for a total of three credit hours across two semesters.

Tuesday classes focus on the fundamentals of angel investing and building new businesses from idea to funding to sustainable growth. Thursday classes are conducted by one of the founders of and the portfolio manager for Research Valley Funds, LLC. This class follows actual company cases which are reviewed and discussed by the class. The Thursday class sessions also provide the teaming exercises for assessing potential investments and analyzing the performance of portfolio companies as well as team specific responsibilities for due diligence, deal structuring, IP assessment.

About Research Valley Funds, LLC Research Valley Funds, LLC, is a family of funds located in the Research Valley, home to Texas A&M University and the Texas A&M University System. Formed in July 2009, our funds are primarily dedicated to making early stage angel investments in science and technology ventures.

LEARNING OUTCOMES:

- Explain the portfolio theory of angel investing and the various funding stages.
- Develop a model to assess entrepreneurs and their presentations for funding.
- How to structure a term sheet and calculate valuations after multiple investment rounds.
- Prepare and present an investment thesis
GRADING POLICIES:

Your course performance will be evaluated with the following approximate percentage weights:

1. Presentations from the course materials by David Rose and Dave Berkus (15%)
2. Prepare three valuations using at least two different valuation methods (15% each)
3. Prepare one written assessment of a topic of current interest – instructor assigns (15%)
4. Class preparation and participation (10%)
5. Final Paper: Attend and report on companies presenting at one angel networking event (15%)

The final grades will be based on a curved distribution of the total scores across all graded evaluations. The following student protection measures shall apply: (i) any student who earns a numeric grade of 90% or higher shall be guaranteed a letter grade of A in the course, (ii) a percentage grade of 80% guarantees a B, (iii) a percentage grade of 70% guarantees a C, and (iv) a percentage grade of 60% guarantees a D.

GENERAL EXPECTATIONS:

- The course is designed to be based on experiential learning and success comes from being engaged.
- Key to the richness of your learning experience will be the sharing of viewpoints and the testing of ideas.
- Exploring ideas and sharing different viewpoints will be done in a respectful and courteous manner.
- Wi-Fi enabled devices can be used for taking notes; not to be used for multitasking non-class related activities.
- The classroom is a 15 minute walk or a 10 minute drive from the Wehner building – plan to be on time for class.

WEEKLY CLASS SCHEDULE:

The weekly schedule is attached. Since entrepreneurs making pitches for angel funding are invited to present during class sessions, any upcoming unscheduled opportunities will be announced during class and the regular schedule of lectures will be adjusted accordingly.

ATTENDANCE POLICY:

The attendance policy conforms with Rule 7 in the Student Handbook (attached).

AGGIE HONOR: “An Aggie does not lie, cheat, or steal or tolerate those who do.”

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning and to follow the philosophy and rules of the Honor System. Ignorance of the rules does not exclude any member of the Texas A&M University community from the requirements or the processes of the Honor System. For additional information please visit http://aggiehonor.tamu.edu/ for more information on the honor code.

ADA:

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu

HOW TO ORDER TEXTBOOKS:

The two texts for the course are available through Amazon.
Attendance Policy

In accordance with University policy regarding class attendance, students are expected to attend all class meetings and read/comcomplete all assignments. Students should plan carefully and make all preparations needed to avoid issues with this policy. According to University policy, there are ten types of excused absences. These are listed in Texas A&M University Regulations and on the TAMU website at [http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07):

1) Participation in an activity appearing on the university authorized activity list.
2) Death or major illness in your immediate family.
3) Illness of a dependent family member.
4) Participation in legal proceedings or administrative procedures that require your presence.
5) Religious holy day.
6) Injury or Illness that is too severe or contagious for you to attend class. An absence for a non-acute medical service does not constitute an excused absence.
7) Required participation in military duties.
8) Mandatory admission interviews for professional or graduate school which cannot be rescheduled. Job interviews are not excused absences.
9) Mandatory participation as a student-athlete in NCAA-sanctioned competition.
10) Pregnancy and related conditions as defined by Title IX, with need determined by the student’s physician.

Additionally, students that provide at least 72 hours notice maybe granted, at the instructor’s sole discretion, an exception for approved career related activities such as in-person interviews (not phone interviews). Where students are granted exceptions, it is the sole responsibility of the student to make up any missed work.

Makeup Exam Policy

You can make up an exam only if an absence is excused. To be considered excused, you must notify me in writing (acknowledged e-mail message is acceptable) prior to the date of absence, and provide appropriate documentation for the absence. In cases where advance notification is not feasible (for example, accident or emergency) you must provide notification by the end of the second working day after the absence, including an explanation of why notice could not be sent prior to the class. The fact that these are university-excused absences does not relieve you of responsibility for prior notification and documentation. Failure to notify and/or document properly may result in an unexcused absence. Falsification of documentation is a violation of the Honor Code.
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Course Change Request

New Course Proposal

Date Submitted: 04/16/18 3:26 pm

Viewing: INTA 696 : Analytic Tradecraft

Last edit: 05/03/18 2:44 pm
Changes proposed by: jwood

Contact(s)

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<tr>
<th>Name</th>
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<tr>
<td>Janeen Wood</td>
<td><a href="mailto:jwood@tamu.edu">jwood@tamu.edu</a></td>
<td>979-458-2276</td>
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Course prefix | INTA |
Course number | 696  |
Department    | International Affairs |
College/School| Bush School of Gov & Pub Serv |
Academic Level| Graduate |
Effective term| 2019-2020 |

Complete Course Title
Analytic Tradecraft

Abbreviated Course Title
ANALYTIC TRADECRAFT

Catalog course description
Perform analysis in the U.S. Intelligence Community; hone writing, briefing and analytical skills; focus on fundamentals of critical thinking, the psychology of analysis and intelligence process.

Prerequisites and Restrictions
Should catalog prerequisites / concurrent enrollment be enforced?
No

Crosslistings
No
Crosslisted With

Stacked
No
Stacked with

Semester
3
Credit Hour(s)
3 (per week):
Lecture:
3
Lab:
0
Other:
0

Repeatable for credit?
No

CIP/Fund Code
4405040001

Default Grade Mode
Letter Grade (G)

Method of instruction
Lecture

Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education)
No

In Workflow
1. INTA Department Head
2. Curricular Services Review
3. GB Committee Preparer
4. GB Committee Chair
5. GB College Dean
6. GC Preparer
7. GC Chair
8. Faculty Senate Preparer
9. Faculty Senate
10. Provost II
11. President
12. Curricular Services
13. Banner

Approval Path
1. 04/16/18 5:10 pm
   Gregory Gause (gregory.gause):
   Approved for INTA Department Head
2. 04/17/18 1:41 pm
   Sandra Williams (sandra-williams):
   Approved for Curricular Services Review
3. 05/03/18 2:46 pm
   Rane Cunningham (rane): Approved for GB Committee Preparer
4. 05/07/18 5:24 pm
   Blease Graham (cole_graham):
   Approved for GB Committee Chair
5. 05/07/18 9:00 pm
   Frank Ashley (fashley):
   Approved for GB College Dean
6. 06/13/18 12:16 pm
   Meagan Kelly (meagankelly):
   Approved for GC Preparer
7. 07/20/18 4:26 pm
   LaRhesa Johnson (lrjohnson):
   Approved for GC Chair

https://nextcatalog.tamu.edu/courseleaf/approve/?role=Faculty%20Senate
Will this course be taught as a distance education course?  
No

Is 100% of this course going to be taught in Texas?  
Yes

Will classroom space be needed for this course?  
Yes

This will be a required course or an elective course for the following programs:

- **Required (select program)**

- **Elective (select program)**

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<td>(MIA-INTA) Master of International Affairs in International Affairs</td>
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**Course Syllabus**

- **Syllabus:**  
  Upload syllabus

  - INTA 696 Analytic Tradecraft.pdf

- **Letters of support or other documentation:**  
  No

- **Additional information**

  - **Reviewer Comments**
    Sandra Williams (sandra-williams) (04/17/18 1:40 pm): Moving forward, however, one of the links to student rule 7 in the syllabus is not correct and will need to be fixed.
    Rane Cunningham (rane) (05/03/18 2:45 pm): The link to student rule 7 in the syllabus has been corrected.
INTA 696 Analytic Tradecraft

Katherine T. Weary
Bush School of Government and Public Service
Office Hours: 10:00-12:00 Office: 1066
Phone: 979-458-2276/ Email: kathie.weary@gmail.com

Course Purpose and Methodology:
The purpose of Analytic Tradecraft is to prepare students to perform analysis in the U.S. Intelligence Community (IC) by teaching them how analysis is executed in the community and honing their writing, briefing, and analytical skills. This is a three part course. Part I focuses on the “Fundamentals” of critical thinking, the psychology of analysis, and the intelligence process. Part II is “On the Job Training” in writing analysis for the IC. Part III launches the “Structured Analytic Technique Practicals” portion of the course where students will be trained in structured analytic techniques (SAT) and be asked to apply these techniques in real world situations.

Learning Objectives:
Students will learn critical thinking and analytic fundamentals, which are essential skills for overcoming inherent mental models when performing analysis. Students will become familiar with the IC, the various forms of intelligence used in the community, the intelligence process, and the National Priorities Framework that drive analysis and intelligence collection. Finally, students will be trained in IC writing styles and analytic approaches, and will be tasked to apply their tradecraft in real world scenarios. Analytic tradecraft must be practiced; therefore students will execute weekly writing assignments and deliver several briefings throughout the semester.

By applying the basic tradecraft taught in this course and internalizing the analytic approaches, students will gain a solid skill set applicable in many fields—the ability to scope a problem, apply structured analysis, and communicate findings. In addition, students will have a firm foundation in analysis, which will serve as a baseline for studies in more advanced SATs.

Context:
Intelligence analysts face complex international issues and are asked to provide descriptive, evaluative, and explanatory analysis based on incomplete data, ambiguous information, and evolving storylines. With the growth of transnational security threats, terrorism, and non-state actors, the complexity of understanding the intentions of foreign entities exponentially grows. The modern globalized interdependency of resources, economies, political strife, and cultural change has created ever-evolving complex systems. To meet these insurmountable challenges, analysts employ critical thinking skills and SATs to provide IC customers time-sensitive actionable intelligence.

The postmortem assessments from the 9/11 and Iraq WMD Commissions indicated a need for greater rigor in the IC’s analytic process. Specifically, the 911 Commission noted the analysis suffered from a failure of imagination and the WMD Commission attributed failure to poor tradecraft. These critiques led the IC to incorporate SATs into the established analytic process. SATs are advanced analytic approaches that explicitly lay out the analysis for it to be reviewed, critiqued, and built upon. The application of structured analytics in the IC is key to providing more rigorous analysis to policymakers that challenges accepted views and seeks alternative analysis.
Course Requirements and Grading:

Overall grades will be based on the five assignments listed below. Each assignment will be weighed evenly and at the end of the course an average of these grades will reflect the final grade. The assignments for the course are:

• Weekly Argument Evaluations through the first eight sessions and two additional sessions later in the semester as noted in the course outline. There will be ten argument evaluations in total, as long as the pace continues as expected. The written assignment will be due at the beginning of each session and several students will give brief “elevator speeches.” Through the course of the semester every student will be called upon for briefings. Grades for argument evaluations and briefings will be averaged to form one grade at the end of semester;

• Analytic Product Assignment 1 due session 9.

• Analytic Product Assignment 2- Analysis of Competing Hypotheses due session 11;

• Analytic Product Assignment 3 due session 14; and

• In Class Group Scenario simulated during session 14 and presented during Final.

Grading Scale

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<th>Grade</th>
<th>Description</th>
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<tr>
<td>90%-100%</td>
<td>Extraordinary, excellent work and mastery of concept</td>
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<tr>
<td>80%-89%</td>
<td>Good work and solid command of concept</td>
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<tr>
<td>70%-79%</td>
<td>Adequate work and sufficient understanding of concept</td>
</tr>
<tr>
<td>60%-69%</td>
<td>Poor work, little understanding of concept</td>
</tr>
<tr>
<td>0%-59%</td>
<td>Lack of work, no understanding of concept</td>
</tr>
</tbody>
</table>

Regarding absences and missed work, I would recommend students attend all sessions because much of the learning in this course is done in the classroom through discussion and application. However, I will refer students to http://student-rules.tamu.edu/rule07 for a list of excused absences. Students will have opportunities to turn in assignments where deadlines conflict with an excused absence event. Assignments will be due in the same timeframe based on the conclusion of the excused absence event. Other issues will be worked through on a case by case basis.

Class attendance is mandatory. If an absence is excused, the instructor will either provide the student an opportunity to make up any quiz, exam or other work that contributes to the final grade or provide a satisfactory alternative by a date agreed upon by the student and instructor. If the instructor has a regularly scheduled make up exam, students are expected to attend unless they have a university approved excuse. The make-up work must be completed in a timeframe not to exceed 30 calendar days from the last day of the initial absence. The reasons absences are considered excused by the university are listed below. See Student Rule 7 for details (http://student-rules.tamu.edu/rule07). The fact that these are university-excused absences does not relieve the student of responsibility for prior notification and documentation. Failure to notify and/or document properly may result in an unexcused absence. Falsification of documentation is a violation of the Honor Code.

1) Participation in an activity that is required for a class and appears on the university authorized activity list at https://studentactivities.tamu.edu/app/sponsauth/index
2) Death or major illness in a student's immediate family.
3) Illness of a dependent family member.
4) Participation in legal proceedings or administrative procedures that require a student's presence.
5) Religious holy day. NOTE: Prior notification is NOT required.
6) Injury or illness that is too severe or contagious for the student to attend class.
   a) Injury or illness of three or more class days: Student will provide a medical confirmation note from his or her medical provider within one week of the last date of the absence (see Student Rules 7.1.6.1)
   b) Injury or illness of less than three class days: Student will provide one or both of these (at instructor’s discretion), within one week of the last date of the absence:
      (i.) Texas A&M University Explanatory Statement for Absence from Class form available at http://attendance.tamu.edu or
      (ii.) Confirmation of visit to a health care professional affirming date and time of visit.
7) Required participation in military duties.
8) Mandatory admission interviews for professional or graduate school that cannot be rescheduled.

Other absences may be excused at the discretion of the instructor with prior notification and proper documentation. In cases where prior notification is not feasible (e.g., accident or emergency) the student must provide notification by the end of the second working day after the absence, including an explanation of why notice could not be sent prior to the class.

On rare occasions, the instructor might have to miss a class due to administrative or academic responsibilities out of town. This will be exceedingly rare, but if it does occur, the instructor reserves the right to reschedule class at a time when the vast majority of students are available for the make-up class and will convey the material to students unable to attend the make-up during office hours.

Academic Honesty:

“An Aggie does not lie, cheat or steal, or tolerate those who do.” For additional information, please visit: http://aggiehonor.tamu.edu.

Americans with Disability Act (ADA):

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.

Required Reading:

Class Outline:

Part I: Fundamentals
Session One: Thinking Critically about Analytic Tradecraft

Part I of the course will establish the analytic and critical thinking foundation for the rest of class. In this first session, we will begin by defining intelligence, exploring the concept of analytic tradecraft, and understanding the fundamentals of critical and analytic thinking. Argument Evaluation 1 will be outlined and assigned.

The Thinker's Guide to Analytic Thinking: How to Take Thinking Apart and What to Look for When You Do; The Elements of Thinking and the Standards They Must Meet.


The Analyst's Style Manual.

Session Two: Knowing Your Mindset, Bias, and Perspective

Discussion will be centered on the basic elements of analysis including mindset/mental models, bias, perspective, judgement, and assumptions. Argument Evaluation 1 due and elevator speeches at the beginning of class.

Psychology of Intelligence Analysis, Chapters 1-6, 10-13.

A Tradecraft Primer: Structured Analytic Techniques for Improving Intelligence Analysis.

Session Three: The Intelligence Community and the “INTs”

Discussion will focus on the intelligence community players, the types of intelligence each entity provides, the intelligence cycle, how the intelligence process provides priorities for the commu-
nity, and various intelligence products. In addition, we will begin Part II of the course with identifying IC customers for analytic products. Argument Evaluation 2 due and elevator speeches at the beginning of class.

From Secrets to Policy, Chapters 1-6.

Critical thinking for Strategic Intelligence, Chapter 1.

**Part II: “On the Job” Training in Writing Analysis**

**Session Four: Key Intelligence Question and Contextual Framework**

Launch of the “On the Job” portion of the course. Students will learn to identify key intelligence questions and create a contextual framework for intelligence targets. Concepts covered will include: decomposition, visualization, analytic framework, actors/factors, and drivers. Students will be introduced to the following analytic techniques: Red Hat Analysis, Outside In Thinking, Visualization Techniques, and Alternative Futures Technique. Argument Evaluation 3 due and elevator speeches at the beginning of class.

Critical Thinking for Strategic Intelligence, Chapter 2 and 3.

Psychology of Intelligence Analysis, Chapter 7.

**Session Five: Conceptualizing Intelligence Products and Analytic Approaches**

Students will begin to conceptualize analytic products through assessing audience, intelligence, message, storyline, and threshold. Visualization techniques used to launch analytic projects will be introduced. In addition, students will learn various types of analytic arguments and approaches including descriptive, explanatory, evaluative, and estimative. Argument Evaluation 4 due and elevator speeches at the beginning of class.

Critical Thinking for Strategic Intelligence, Chapter 4 and 5.

**Session Six: Argumentation, Key Assumptions Check, and Making Your Case**

Students will explore the next step in analysis, which is examining key assumptions. Key Assumption checks are critical to perform throughout any analytic process because they form the foundation of the analytic line or argument. Further, students will learn the essential pieces of an argument—claims, reasons, and evidence, the types of logic used in making an argument, and identifying which argument form is best suited for the different types of analysis. Argument Evaluation 5 due and elevator speeches at the beginning of class.

Critical Thinking for Strategic Intelligence, Chapter 11 and 12.

**Session Seven: Hypothesis Generation, Alternative Hypotheses, Final Check of Analysis**

Students will practice different techniques for hypothesis generation and evaluation including simple hypotheses, quadrant hypotheses generation, multiple hypotheses generator, argument mapping, and deception detection. Further, students will learn reframing techniques designed to give another layer of objectivity to analysis, specifically pre-mortem reviews and self-critiques. Argument Evaluation 6 due and elevator speeches at the beginning of class.
Critical thinking for Strategic Intelligence, Chapter 13 and 15.

Session Eight: Conveying Message Effectively, Defining Probability, and Concluding Analysis

Students will review key aspects of intelligence writing that ensure the message has been communicated effectively. The analyst’s framework for analysis must be clear before it can be presented to the customer. The structure of the product is a vital component in conveying the message, including the inverted pyramid structure with the title, bottom line up front, and leads that maintain the argument’s flow. In addition, the use of the active voice and clear, precise, and easy to understand writing style must be used for effectiveness. Argument Evaluation 7 due and elevator speeches at the beginning of class. Analytic Product Assignment 1 will be assigned at the end of class and due at session 9.

Critical Thinking for Strategic Intelligence, Chapter 17, 19, and 20.

The Analyst’s Style Manual.

Part III: Structured Analytic Technique Practicals

Session Nine: Analysis of Competing Hypotheses (ACH)

During the final portion of the course, students will be trained in several structured analytic techniques. ACH will be the first technique introduced and it will be practiced for several class sessions, given its prominence in the analytic community today. Analytic Product Assignment 1 due. Argument Evaluation 8 assigned and due session 10.

Psychology of Intelligence Analysis, Chapter 8.

Session Ten: Analysis of Competing Hypotheses Continued

Students will be in groups for scenarios on ACH. Argument Evaluation 8 due and elevator speeches at the beginning of class. Assign Analytic Product Assignment 2- ACH due session 11.

Session Eleven: Simple Scenarios and Indicators/Signposts Analysis

Students will learn the Simple Scenarios Analysis Technique. Training will include when to use the technique, how to perform the analysis, and highlights on the “value added.” In addition, students will be introduced to Indicators and Signpost techniques that are frequently used in conjunction with Simple Scenarios in the field. Analytic Product Assignment 2-ACH due. Argument Evaluation 9 assigned and due session 12.

Tradecraft Review.

Session Twelve: Structured Analytic Technique Review and Practice

Students will turn in Argument Evaluation 9 and give elevator speeches. During the session, we will review structured analytic techniques covered in the class. Specifically, we will discuss strategies for using the techniques and how they can and should be used together. Argument Evaluation 10 assigned and due session 13. Analytic Product Assignment 3, not due until session 14,
will be assigned so that students can prepare to utilize the next class session, session 13, to prepare their analytic products for assignment 3.

**Session Thirteen: Structured Analytic Technique Review and Individual Analysis**

Argument Evaluation 10 due and elevator speeches at the beginning of class. Students will have the opportunity to utilize small groups to perform structured analytic techniques pertaining to their analysis for the final individual Analytical Product Assignment 3 due at session 14.

**Session Fourteen: In Class Scenario**

Students will turn in Analytical Product Assignment 3. In Class Group Scenario will be presented and worked through the rest of the session with final products ready for presentation on the date of the Final.
Course Change Request

New Course Proposal

Date Submitted: 04/17/18 9:08 am

Viewing: KINE 651 : Introduction to Human Clinical Research
Last edit: 04/17/18 11:41 am
Changes proposed by: mpkj.engelen

<table>
<thead>
<tr>
<th>Contact(s)</th>
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<tbody>
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<td>E-mail</td>
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<td>Phone</td>
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<td></td>
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<tr>
<td>Marielle Engelen</td>
</tr>
<tr>
<td><a href="mailto:mpkj.engelen@tamu.edu">mpkj.engelen@tamu.edu</a></td>
</tr>
<tr>
<td>979-220-2282</td>
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</tbody>
</table>

Course prefix: KINE
Course number: 651

Department: Health & Kinesiology
College/School: Education & Human Development
Academic Level: Graduate
Academic Level (alternate): Undergraduate
Effective term: 2019-2020

Complete Course Title: Introduction to Human Clinical Research
Abbreviated Course Title: INTRO HUM CLIN RSCH

Catalog course description:
Fundamentals of initiating and conducting a human clinical research; topics include subject recruitment and (medical) screening, clinical study design, preparations and procedures; federal and institutional policies, budget, role of pharmacy and laboratory in clinical research.

Prerequisites and Restrictions:
Graduate classification in Biomedical Sciences, Kinesiology, Nutrition, Health Science Center, College of Engineering, College of Science, or approval of instructor.

Concurrent Enrollment: No
Should catalog prerequisites / concurrent enrollment be enforced? No
Crosslistings: No
Crosslisted With: No
Stacked: No
Stacked with: No

Semester: 3
Credit Hour(s): 3
Contact Hour(s): 3
Lecture: 3
Lab: 0
Other: 0
Repeatable for credit? No
Three-peat? No
CIP/Fund Code: 5107190016

In Workflow
1. HLKN Department Head
2. Curricular Services Review
3. ED Committee Preparer GR
4. ED Committee Chair GR
5. ED College Dean GR
6. GC Preparer
7. GC Chair
8. Faculty Senate Preparer
9. Faculty Senate
10. Provost II
11. President
12. Curricular Services
13. Banner

Approval Path
1. 04/17/18 9:16 am Melinda Sheffield Moore (zulu818): Approved for HLKN Department Head
2. 04/17/18 11:42 am Sandra Williams (sandra-williams): Approved for Curricular Services Review
3. 04/26/18 8:21 am Melanie Robideau (mrobideau): Approved for ED Committee Preparer GR
4. 06/18/18 3:16 pm Beverly Irby (irbyb): Approved for ED Committee Chair GR
5. 06/18/18 3:17 pm Beverly Irby (irbyb): Approved for ED College Dean GR
6. 07/03/18 8:41 am LaRhesa Johnson (lrjohnson): Approved for GC Preparer
7. 07/20/18 4:26 pm LaRhesa Johnson (lrjohnson): Approved for GC Chair

https://nextcatalog.tamu.edu/courseleaf/approve/?role=Faculty%20Senate
Default Grade Mode: Letter Grade (G)

Alternate Grade Modes: Satisfactory/Unsatisfactory

Method of instruction: Lecture

Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education) No

Will this course be taught as a distance education course? No

Is 100% of this course going to be taught in Texas? Yes

Will classroom space be needed for this course? Yes

This will be a required course or an elective course for the following programs:

Required (select program)

Elective (select program)

Program(s)

(MS-BIMS) Master of Science in Biomedical Sciences
(MS-BIOL) Master of Science in Biology
(MS-BMEN) Master of Science in Biomedical Engineering
(MS-EDHP) Master of Science in Education for Health Care Professionals
(MPH-HPCH) Master of Public Health in Health Promotion and Community Health Sciences
(MPH-PHEB) Master of Public Health in Biostatistics
(MAG-FSTC) Master of Agriculture in Food Science and Technology
(MEN-BAEN) Master of Engineering in Biological and Agricultural Engineering
(MHA-HADM) Master of Health Administration in Health Administration
(MS-HEED) Master of Science in Health Education
(MPH-OCSH) Master of Public Health in Occupational Safety and Health
(MPH-PHEP) Master of Public Health in Epidemiology
(MPH-PHPM) Master of Public Health in Health Policy Management
(MPH-POPH) Master of Public Health in Population Health
(MS-GENE) Master of Science in Genetics
(MS-ITDE) Master of Science in Interdisciplinary Engineering
(MS-KINE) Master of Science in Kinesiology
(MS-MDSC) Master of Science in Medical Sciences
(MS-NRSC) Master of Science in Neuroscience
(MS-NUTR) Master of Science in Nutrition
(MS-PHSC) Master of Science in Pharmaceutical Sciences
(MSN-FRNR) Master of Science in Nursing in Forensic Nursing
(MSN-FNPR) Master of Science in Nursing in Family Nurse Practitioner
## Course Syllabus

<table>
<thead>
<tr>
<th>Program(s)</th>
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</thead>
<tbody>
<tr>
<td>(MSN-NRED) Master of Science in Nursing in Nursing Education</td>
</tr>
<tr>
<td>(MSPH-PHPM) Master of Science in Public Health in Health Policy and Management</td>
</tr>
<tr>
<td>(PHD-BIMS) Doctor of Philosophy in Biomedical Sciences</td>
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<tr>
<td>(PHD-BMEN) Doctor of Philosophy in Biomedical Engineering</td>
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<tr>
<td>(PHD-CLPY) Doctor of Philosophy in Clinical Psychology</td>
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<tr>
<td>(PHD-EPSY) Doctor of Philosophy in Educational Psychology</td>
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<tr>
<td>(PHD-CPSY) Doctor of Philosophy in Counseling Psychology</td>
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<tr>
<td>(PHD-FSTC) Doctor of Philosophy in Food Science and Technology</td>
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<tr>
<td>(PHD-GENE) Doctor of Philosophy in Genetics</td>
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<tr>
<td>(PHD-HEED) Doctor of Philosophy in Health Education</td>
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<tr>
<td>(PHD-HRSA) Doctor of Philosophy in Health Services Research</td>
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<tr>
<td>(PHD-KINE) Doctor of Philosophy in Kinesiology</td>
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<tr>
<td>(PHD-MDSC) Doctor of Philosophy in Medical Sciences</td>
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<tr>
<td>(PHD-NUTR) Doctor of Philosophy in Nutrition</td>
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<tr>
<td>(PHD-PHLS) Doctor of Philosophy in Public Health Sciences</td>
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<tr>
<td>(PHD-PHSC) Doctor of Philosophy Pharmaceutical Sciences</td>
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<tr>
<td>(PHD-TOXI) Doctor of Philosophy in Toxicology</td>
</tr>
</tbody>
</table>

### Syllabus:

Upload syllabus

**KINE 651 - Intro Syllabus.pdf**

### Letters of support or other documentation

Yes

### Upload files

**2017 - 0330 - TAMUTOPProposal-Engelen final full.pdf**

### Additional information

Proposal provided as support documentation provides insight into support available across colleges for creation of clinical trials courses. Previous course evaluation 4.9

### Reviewer Comments

**Sandra Williams (sandra-williams) [04/16/18 9:28 am]**: Rollback: What are the “Other” contact hours listed - please add comment under “Additional Information” field on form; syllabus shows “special topics” in title and shows “689” as the course number.

**Sandra Williams (sandra-williams) [04/16/18 3:00 pm]**: Rollback: Based on your response regarding the “Other” contact hours for your KINE 651 proposal and your response regarding needing classroom space, you need to change your contact hours to move the contact hours all under “Lecture” instead. If you need 1-hour of online discussion, you can request this type of hybrid method when you create your section. Also, your syllabus indicates meeting times on Friday 10:20a.m. to 12:20p.m. (2-contact hours) but there is no mention of 1-hour online discussion needed for your 3-semester credit hour course. Please make updates to the form/syllabus.

**Sandra Williams (sandra-williams) [04/17/18 11:41 am]**: Updated CIP code as requested by department.

**Sandra Williams (sandra-williams) [04/17/18 11:42 am]**: Update received.

### Reported to state?

Add
Course title and number:  Introduction in Human Clinical Research – KINE 651
Term:  Fall 2019

Meeting times:  Friday 10:20 am - 1:20 pm,
Location:  675 John Kimbrough Blvd, rm 110 - HCRF conference room

Course Description and Prerequisites
This course is going to focus on Human Clinical Research – It will be a course to introduce students in the world of Human Clinical Research from a multidisciplinary approach. Students will discuss the basics of clinical trial study design. Using completed and ongoing clinical trials as examples, students will practice practical skills in recruitment materials, informed consent procedures, development of standard operating procedures including functional measurements, questionnaires, and assessments, and case report forms. The importance of medical oversight and participant safety will also be integrated throughout. The role of laboratory processes into clinical trials is also discussed. All skills will be based on current regulations (federal, state, and institutional), as well as, Good Clinical Practices.

Prerequisites: Graduate student in Nutrition, Kinesiology, College of Science, College of Engineering, Health Science Center, or approval of instructor

Course Objectives
At the end of this course, the student will be able to
1. identify institutional policies (regulatory and budget requirements, clinical trial registration) involved in human clinical research.
2. generate and analyze a research protocol (e.g., research questions, study design).
3. prepare and identify basic documents and measurements needed to complete a study day (including subject recruitment and screening).
4. discuss the hallmarks of scientifically sound human clinical research studies.

Instructor Information
Name: Marielle P Engelen, PhD  Alternate Instructor: Laura E Ruebush, PhD
Telephone number: 979-220-2910  Telephone number: 979-218-5515
Email address: mpkj.engelen@tamu.edu  Email address: lruebush@tamu.edu

Office hours: 2:30 - 3:30 pm Mondays; alternative times by appointment only (10 minute rule)
Office location: 675 John Kimbrough Blvd, rm 127
Anticipated response: within 2 business days

Textbook and/or Resource Material
There is no required textbook for this class.
Grading Policies
The grade in this course will be based on four items:

1. Your in class participation. Each student is expected to be alert, attentive, and engaged during each class. It is anticipated that your participation will consist of questions, participation in discussion, and comments, AND it is expected that your participation will be collegial, tactful, facilitative, and supportive of your fellow students. BE AWARE that participation also includes timeliness with your assignments (see below). Class participation will make up 10% of your grade.

2. Your online participation. Each student is expected to engage in online discussion as an extension of the material presented in class. Online participation will make up 30% of your grade.

3. Submission of a Research proposal (Specific aim section) of a human clinical research study that you would love to conduct (approx 1 page). This submission will total 30% of your grade.

4. A 15-20-min powerpoint presentation of the logistics regarding the recruitment and implementation of your human clinical research study described in your Research proposal. You should be able to present the important design aspects of the study, and how you think this study needs to be prepared, conducted and analysed. This talk will make up 30% of your grade.

Your final grade will be determined using a 10% scale based on the total possible points of 100. Thus, “A” = 90-100 points, “B” = 80-89 points, “C” = 70-79 points, “D”=60-69 points, and “F”= 59 points or less.

Your class presentation day will be assigned during the first class periods. Missing your class presentation day or not submitting your Specific Aim / study design page on time will result in a zero.

Attendance and Make-up Policy
The student is responsible for providing satisfactory evidence to the instructor to substantiate the reason for the absence. Among the reasons absences are considered excused by the university are the following (see Student Rule 7 for details http://student-rules.tamu.edu/rule07). The fact that these are university-excused absences does not relieve the student of responsibility for prior notification and documentation. Other absences may be excused at the discretion of the instructor with prior notification and proper documentation.

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For additional information please visit: http://aggiehonor.tamu.edu

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### Course Topics, Calendar of Activities, Major Assignment Dates

<table>
<thead>
<tr>
<th>Week #</th>
<th>Topic</th>
<th>Online Activity</th>
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<tbody>
<tr>
<td>1</td>
<td>Introduction to the course. Last day to drop class.</td>
<td>Online Introduction</td>
</tr>
<tr>
<td>2</td>
<td>What is human clinical research?</td>
<td>Online examples of published clinical trials</td>
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<tr>
<td>3</td>
<td>What are clinical research questions?</td>
<td>Online design of CTRAL trials</td>
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<tr>
<td>4</td>
<td>Human subjects regulatory aspects</td>
<td>Online ethical issues of CTRAL trials</td>
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<tr>
<td>5</td>
<td>Medical and nursing aspects of human clinical research</td>
<td>Online in/ex-clusion of CTRAL trials</td>
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<tr>
<td></td>
<td></td>
<td>ROUGH DRAFT student generated clinical trial DUE</td>
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<tr>
<td>6</td>
<td>Discussion submitted research design cases</td>
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<tr>
<td>7</td>
<td>Discussion submitted research design cases</td>
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<tr>
<td>8</td>
<td>Recruitment and preparing/conducting a clinical study day (overview)</td>
<td>Online recruitment and prep of CTRAL trials</td>
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<td></td>
<td></td>
<td>Prefered dates for presentation</td>
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<tr>
<td>9</td>
<td>Role of the lab in clinical research (processing, analysis and regulations)</td>
<td>Online current event unethical research or misconduct</td>
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<tr>
<td>10</td>
<td>Standardized clinical testing and questionnaires (examples), and how to interpret data</td>
<td>Online video from Office of Research Integrity</td>
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<td>11</td>
<td>Making a budget for a clinical study/ discussions with possible sponsors</td>
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<td>12</td>
<td>Thanksgiving Break</td>
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<tr>
<td>13</td>
<td>Students case presentation</td>
<td>FINAL paper and presentation DUE on scheduled day</td>
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<tr>
<td>14</td>
<td>Students case presentation &amp; Course evaluation</td>
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<tr>
<td>15</td>
<td>Redefined day (if needed)</td>
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Clinical Research Experiences and Instruction for Students (CREIS)

PI: Mariëlle Engelen, PhD
Co-PI: Nicolaas Deutz, MD PhD, Carrie Byington, MD, Tom McKnight, PhD

Abstract
Improvements in medicine are often related to the outcomes of successful human clinical research. The success of clinical trials is highly dependent on the availability of clinical/clinician researchers to complete trials in a timely and efficient manner. Although supporting clinical research is a national priority, well-trained researchers are rare. Currently, there is a lack of well-established clinical research training programs available at colleges prior to graduate and/or professional schools to fill this gap. The Center for Translational Research in Aging and Longevity (CTRAL) has a framework in place for supporting TAMU training requirements and on-site experiences with clinical measurements in healthy and diseased populations.

This project proposes to expand the curriculum for undergraduate students with an interest in human clinical research and is a collaboration between faculty from the Colleges of Education and Human Development, Medicine, and Science. Funding will support scale-up of the existing CTRAL curriculum and enhance the student clinical research experience. Experiential learning components will include knowledge and skills to assist with clinical research using established methods, theoretical background of study design development, and critical analysis of published manuscripts in the field of clinical research. A variety of high-impact learning strategies will be used as well as intense engagement with participants enrolled in ongoing clinical trials at the Human Clinical Research Facility.

The current interest in human clinical research among students across campus, as well as the increased demand for trained clinician/clinical researchers by universities, hospitals, and industry should guarantee sustainability of the program.

Key words: human clinical research, curriculum expansion, clinical research conduct, experiential learning, undergraduate students
Rationale and objectives
Support of human clinical research and the promise of bringing scientific discovery to patients to improve health are national priorities as indicated by the National Institutes of Health (NIH, 2017). Clinical research provides a unique opportunity to blend fundamental sciences with medical practice. The amount of time and effort needed for discoveries to move from fundamental sciences to medical practice has increased by the growing shortage of trained clinical/clinician researchers and research personnel (Roberts, et al., 2012). Improvements in recruiting and training researchers that have a good understanding of both the nature of clinical research and fundamental sciences is imperative to reverse this trend (Roberts, 2012; Lenfant, 2000). Creating a sustainable research infrastructure that includes skilled researchers and staff is therefore an important strategy to support clinical research.

Undergraduate pre-professional students often have limited opportunities to engage in clinical research. This lack of exposure early in their training may decrease their interest in translating fundamental sciences into medical practice as part of their careers. Development of a collaborative, multidisciplinary, and innovative curriculum for undergraduate students with a focus on oral and written communications, and experiential learning in the different aspects of human clinical research is necessary to achieve this goal (Lenfant, 2000). Currently, CTRAL offers a 1-credit hour seminar course (KINE 485) to introduce undergraduates to topics associated with planning and implementation of clinical trials in healthy and diseased conditions. This is the only human clinical research course available to undergraduate students on TAMU campus. For graduate students, a web-mediated 3-credit hour version of this course has recently been successfully introduced (KINE 689), as well as a 1-credit hour seminar journal club (KINE 681). CTRAL also provides a hands-on experience program in clinical trials through undergraduate (KINE 491) and graduate (KINE 685) courses to students across campus.

TOPS funding will enable CTRAL to scale-up the existing curriculum as well as to enhance the clinical research and learning experience program for undergraduate students across campus through collaboration with the Colleges of Medicine and Science. We propose the expansion of courses specifically designed for undergraduate students to provide in-depth instruction on study design, clinical subject recruitment and screening, informed screening process, clinical testing, methods used in clinical trials, as well as understanding of clinical data. In addition, we will intensify the student’s hands-on experiences by engaging them in a variety of high-impact practices in an integrative, engaging, and interactive learning environment.

Upon successful completion of the courses and research hours, students will have the knowledge, skills, and experience to competently assist in the conduct of human clinical trials, and tools to critically review published research. Completion of the research hours will provide the students interaction with healthy and diseased study populations, intense contact with experienced faculty, and opportunities to receive feedback on tasks they have learned about in the classroom. This structured curriculum from classroom to practice promotes the idea of learning beyond the classroom and provides an opportunity for students to create conceptual links between the courses and the actual conduct of clinical research.
Description of activity. We propose the development of two courses designed to train undergraduates in planning and conducting clinical trials. The first course to be developed will provide introduction on planning, design, and conduct of study days (working title: “Introduction to Clinical Trials”). The other course will focus on collection and analysis of clinical data from a variety of functional clinical measurements (e.g., body composition, muscle function, cognitive function, vital signs), blood processing, and simple laboratory techniques in clinical trials (working title: “Methods in Clinical Trials”). Funding will also support development of an enhanced research experience program to improve hands-on experience and assessment skills. Combination of the courses and the enhanced research experience program in healthy and diseased research populations will give both foundational and practical knowledge needed for students to assist in the conduct of clinical trials. The experience can prepare them for work as a clinical research coordinator after graduation or for training in clinical research in graduate or professional school. Additionally, an annual adjudicated student research symposium will be organized focusing on generated research data from ongoing human clinical trials.

<table>
<thead>
<tr>
<th>Courses and learning objectives</th>
<th>Learning outcomes and assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course 1: Introduction to Clinical Trials</strong></td>
<td></td>
</tr>
</tbody>
</table>
| Obj 1a: Instruction on planning of clinical trial | ● Foundational knowledge of clinical trial designs  
● Knowledge of biological mechanism of diseases under study  
● Insight in skills necessary to conduct screening, informed consent and study procedures per good clinical practice |
| Obj 1b: Instruction on design of clinical trial | ● Insight in Federal and University regulatory requirements for conducting human clinical trials  
● Guided critical review of published literature on clinical trials to assess strength/weakness of design |
| Obj 1c: Instruction on conduct of clinical trial | ● Group analysis and oral presentation of review of assigned manuscript aligned with topic of course  
● Individual formative and summative assessment of instruction provided via online quizzes |
| **Course 2: Methods in Clinical Trials** | |
| Obj 2a: Conduct of functional clinical measurement and data analysis | ● Knowledge on collection and analysis of clinical data obtained by functional clinical measurements  
● Insight in simple laboratory techniques in clinical trials  
● Conduct statistical analysis of existing de-identified data and generation of publishable figures/tables |
| Obj 2b: Critical review of published literature | ● Guided critical review of published literature on clinical trials to assess strength/weakness of design, analysis, and interpretation of results  
● Group analysis and oral presentation of review of assigned manuscript aligned with topic of course |
| Obj 2c: Participation in student research symposium | ● Individual formative and summative assessment of instruction provided via online quizzes |

Enhanced Research Experiences program
Obj 3a: Interaction with research faculty and staff
- Experience with study participants including recruitment, screening, informed consent, study day activities
- Experience working with research staff including preparations, data entry, and data analysis
- Individual formative assessment via completion of self-assessment checklist
- Individual summative assessment via oral examination

Obj 3b: Interaction with research participants
- Individual formative assessment via completion of self-assessment checklist
- Individual summative assessment via oral examination

**Participants.**

**College of Education and Human Development:**
- Mariëlle Engelen, PhD, Associate Professor, Head clinical research, Co-director Center for Translational Research on Aging and Longevity, Dept. Health and Kinesiology
- Nicolaas Deutz, MD PhD, Professor, Director Center for Translational Research on Aging and Longevity. Dept. Health and Kinesiology

**College of Science:** Tom McKnight, PhD, Professor, Head Department of Biology

**College of Medicine:** Carrie L. Byington, MD, Dean, Health Science Center

**Students** will be recruited across campus. At least 100 undergraduate students will be able to participate per year. We anticipate a high student enrollment from the following departments: Health & Kinesiology, Biomedical Sciences, Biology, Medicine and other degree programs with a Pre-Medicine track. In the past 3 years, students from the following colleges and departments attended the courses and/or participated in research hours at CTRAL (College of Education and Human Development (Educational Psychology, Health & Kinesiology), College of Medicine (Public Health, Environmental & Occupational Health, Microbial Pathogenesis & Immunology), College of Science (Biology, Math), College of Engineering (Biomedical engineering, Biotechnology, Industrial & Systems Engineering), College of Agriculture & Life sciences (Biochemistry, Genetics, Nutrition, Food Science), College of Veterinary Medicine (Biomedical sciences, Animal Science, Toxicology), College of Liberal Arts (Psychology, University Studies).

**Faculty** will deliver instruction on clinical trial design, methods, data interpretation, underlying biological mechanisms of disease(s) under study, as well critical review of published clinical research. Courses will engage students in a variety of instructional strategies including individual, group and seminar settings. The courses will be delivered in a biweekly meeting model: one meeting will address the practical components of conducting clinical trials, and the other meeting will focus on critical review of literature and underlying mechanism of disease(s) being studied. Curriculum will be delivered in a variety of formats (small and large group activities, interactive in-class sessions, online review/discussions) throughout the semester to improve student interest and support multiple learning styles. Measurements of effective learning will be collected throughout the courses in daily/weekly quizzes and assignments.

After completion of the required university training courses, the clinical trial and lab safety courses (CITI biomedical research investigators and key personnel, biosafety level 2, blood borne pathogen, onsite regulatory and lab safety), and the expanded courses, the students will be enrolled in the enhanced research experience program. The students will engage in scheduled rotations through the several experiences of ongoing clinical research studies at CTRAL in healthy and diseased study participants (including cancer, chronic heart and
lung disease, autism, sleep apnea, diabetes). These components include recruitment, (pre)screening, study day interactions with participants, sample collection, sample processing, data entry and analysis. Students will monitor their involvement using self-assessment checklist, and competencies will be assessed via oral examination. Based on student’s research interest and career goals, a capstone project will be developed and presented at the yearly adjudicated student research symposium. During research experiences, students will be provided self-assessment checklists and oral exam at conclusion of research experience to demonstrate competency in assisting with various aspects of clinical trials.

**Learning outcomes and assessment.** The main learning outcomes for students are to:

- receive integrated learning opportunities about underlying mechanism of disease(s) examined in research studies in the clinical setting.
- gain familiarity with design of clinical trials
- planning and assisting in conduct of clinical trials, including recruitment, (pre)screening, consent, and study day activities.
- engage in critical review of published peer reviewed published manuscripts to understand importance of clinical trial design and assess both strength and weaknesses of implementation.
- improve competitiveness of application for those who seek immediate employment in medical field or admission to professional or graduate programs.

**Length of the award.** We request $100,000 per year for three years. CTRAL has already implemented various aspects of these topics in current education efforts. All courses are taking place in the newly built Human Clinical Research Facility that houses a 12-bed facility, 5 screening/exam rooms, testing area (muscle function, body composition, energy expenditure), rehabilitation area, nursing station, secured filing cabinet, laboratory, and 50 person fully equipped conference room. Due to the novel nature of the curriculum and the innovative methods to be used for instruction, a development phase is needed to ensure appropriate planning and successful pilot of the expanded courses. The refinement phase will help ensure quality of the courses and enable a successful scale-up of the courses for sustainability. During the development phase, course materials will be submitted to University Registrar for approval as 3-credit hour courses to be integrated into the TAMU course catalog. The checklist and materials to be provided are substantial, and will require input from all project personnel. Table below provides timeline of implementation and objectives for each year of the project.

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
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<tbody>
<tr>
<td>Development Phase</td>
<td>Pilot Phase</td>
<td>Refinement Phase</td>
</tr>
<tr>
<td>● Consultation visit with Dr. Maija Holsti (University of Utah)</td>
<td>● Enroll students in two expanded 3-credit hour courses (n=70) ○ “Intro to Clinical Research”</td>
<td>● Refine courses and materials (n=70) ○ “Intro to Clinical Research” ○ “Methods in Clinical Research”</td>
</tr>
<tr>
<td>● Increase enrollment in existing 1-credit hour courses to pre-pilot content, and development of tools for expanded courses (n=70)</td>
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<tr>
<td>● Update current course syllabi, materials, and assessments to be incorporated in two expanded 3-credit hour courses</td>
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<tbody>
<tr>
<td>Improvements of current enhanced research experience program (n=30)</td>
<td>Develop and implement rotation and training schedule for undergraduate students</td>
<td>Refine assessment tools for enhanced research experience program (n=30)</td>
</tr>
<tr>
<td>Focus groups with current undergraduate research students to develop self-assessment and oral assessment tools</td>
<td>Implementation of new assessment tools for enhanced research experience program and enroll students (n=30)</td>
<td>Hold inaugural student research symposium</td>
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<tr>
<td></td>
<td></td>
<td>Submit curriculum for minor</td>
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</tbody>
</table>

**Budget justification**

PI Engelen and Co-PI Deutz will work with Dr. Laura Ruebush, Research Associate at CTRAL, to develop curriculum and assessment tools. Dr. Ruebush has a PhD in curriculum and instruction specializing in science education and has worked as evaluator for health/medical science programs. Dr. Engelen will work with Co-PI McKnight to determine content and materials to support instruction regarding the underlying mechanisms of disease(s) under study. Co-PI Byington with Dr. Deutz will ensure that appropriate clinical skills are addressed in courses. Drs Engelen, McKnight, and Byington will provide an avenue for direct recruitment of potential students from the 3 participating colleges. We have budgeted for travel costs in Year 1 for a consultation visit with collaborator Dr. Maija Holsti. Dr. Holsti has successfully designed and implemented this type of program at University of Utah (Holsti, et al., 2013). She will review expanded course syllabi and provide insights on improving the clinical research component.

**Sustainability plan.**

The curriculum we propose aligns well with the mission of the University’s Quality Enhancement Plan and will provide high-impact educational practices and integrative learning opportunities for undergraduate students which may increase their interest in clinical research as part of their careers as clinical/clinician scientists or clinical research coordinators. The proposed activities also align with the mission of the College of Education and Human Development in enhancing equity in educational achievement and health outcomes. This will be achieved by providing innovative methods of translating research into curriculum and providing undergraduates opportunities to engage directly with participants enrolled in human clinical trials. Aligned with the mission of the College of Science, the curriculum will provide unique learning experience for integrating fundamental science knowledge into the clinical setting. Upon completion of the program, students will be poised to fulfill the mission of the College of Medicine, which is to impact medical field and improve health and wellbeing of people by clinical studies conducted by skilled clinician scientists.

TOPS funding will support the institutionalization of creation of two expanded courses in clinical research to be integrated into TAMU course catalog. PI and Co-PIs will aim to get courses integrated as approved electives into several degree plans. The enhanced research experience program will impact all students who continue research credit upon completion of the award. We also propose to institutionalize the expanded courses and enhanced research experience program through the creation of a minor in clinical research. Funding will support administration efforts during the course and curriculum review process.
References


# Course Change Request

## New Course Proposal

**Date Submitted:** 06/21/18 2:25 pm

**Viewing:** VPAT 660 : Mammalian Cell Pathobiology

**Last edit:** 06/21/18 2:25 pm

Changes proposed by: kathiesmith

## Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kathie Smith</td>
<td><a href="mailto:KSmith@cvm.tamu.edu">KSmith@cvm.tamu.edu</a></td>
<td>9798452851</td>
</tr>
</tbody>
</table>

## Course prefix

- **VPAT**

## Course number

- **660**

## Department

- Veterinary Pathobiology

## College/School

- Veterinary Med & Biomedical Sc

## Academic Level

- Graduate

## Effective term

- 2019-2020

## Complete Course Title

- Mammalian Cell Pathobiology

## Abbreviated Course Title

- MAMMALIAN CELL PATHOBILOGY

## Catalog course description

Cell signaling and organelle perspective of pathogenesis, mechanisms leading to a disease state; fundamental understanding of structural and functional properties of mammalian cells; molecular and cellular mechanisms underlying health-disease transitions.

## Prerequisites and Restrictions

- BIOL 111 and BIOL 112, or approval of instructor.

## Should catalog prerequisites / concurrent enrollment be enforced?

- **No**

## Crosslistings

- **No**

## Crosslisted With

- **No**

## Stacked

- **Yes**

## Stacked with

- VTPB 460 - Mammalian Cell Pathobiology

## Semester

- 3

## Credit Hour(s)

- (per week): 3

## Contact Hour(s)

- 3

## Lecture

- Total: 3

## Lab

- 0

## Other

- 0

## Repeatable for credit?

- **No**

## CIP/Fund Code

- 2609010002

## Default Grade Mode

- Letter Grade (G)

## Method of instruction

- Lecture

## Will sections of this course be taught as non-traditional? (i.e.,

- **No**

## Approval Path

1. 06/18/18 3:42 pm
   - Ramesh Vemulapalli (rvemulapalli): Approved for VTPB Department Head
2. 06/21/18 10:49 am
   - Terra Bissett (tbissett): Rollback to Initiator
3. 06/21/18 2:37 pm
   - Ramesh Vemulapalli (rvemulapalli): Approved for VTPB Department Head
4. 06/21/18 3:55 pm
   - Terra Bissett (tbissett): Approved for Curricular Services Review
5. 06/21/18 4:03 pm
   - Kathie Smith (kathiesmith): Approved for VM Committee Preparer GR
6. 06/22/18 9:01 pm
   - Mike Crisciello (crisci): Approved for VM Committee Chair GR
7. 06/22/18 7:19 am
   - Robert Burghardt (rburghardt): Approved for VM College Dean GR
8. 07/03/18 8:41 am
   - LaRhesa Johnson (lrjohnson): Approved for GC Preparer
VPAT 660: Mammalian Cell Pathobiology

Parts of term, distance education (educaon)

Will this course be taught as a distance education course? No

Is 100% of this course going to be taught in Texas? Yes

Will classroom space be needed for this course? Yes

This will be a required course or an elective course for the following programs:

Required (select program)

Elective (select program)

<table>
<thead>
<tr>
<th>Program(s)</th>
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</thead>
<tbody>
<tr>
<td>(MS-BIMS) Master of Science in Biomedical Sciences</td>
</tr>
<tr>
<td>(PHD-BIMS) Doctor of Philosophy in Biomedical Sciences</td>
</tr>
</tbody>
</table>

Syllabus:

Upload syllabus

Mammalian Cell Pathobiology 2020 Syllabus.docx

Letters of support or other documentation

No

Additional information

This course will be stacked with VTPB 460 (new course).

Reviewer Comments

Terra Bissett (t.bissett) (06/21/18 10:49 am): Minor edits made to form.

Rollback: Prerequisites on form shows BIOL 213 (syllabus states BIOL 213 is recommended) – should it be listed as a prerequisite?; Syllabus: please include link to Aggie Honor Code.

Terra Bissett (t.bissett) (06/21/18 3:54 pm): Updates received.
Meeting times/location: T & R 3:55-5:10 PM / TBD

Overview:
Welcome to Mammalian Cell Pathobiology. This course is designed to provide undergraduate and graduate students interested in medical, dental, veterinary, nursing, and pharmaceutical careers as well as in biomedical research with a cell signaling and organelle perspective of pathogenesis, i.e. mechanisms leading to a disease state. This course is organized around a unifying theme relating basic knowledge of cell biology to human and animal disease. Therefore, building on a fundamental understanding of structural and functional properties of mammalian cells, this course will emphasize molecular and cellular mechanisms underlying health-disease transitions. Enrollment is limited to 25 students.

Objectives:
1- To provide a solid understanding of changes in molecular pathways and cellular processes underlying human and animal disease

2- To promote critical skills for interpretation, conceptual integration, and communication in the analysis of cellular processes emphasizing a biomedical perspective

3- To develop essential intellectual skills to succeed in professional and/or graduate school programs as well as in the pursuit of continued, independent learning.

Learning Outcomes – VTPB 460 (undergraduate students):
1- To interpret and communicate underlying principles of cellular dysfunction

2- To distinguish major pathway alterations in health-disease transitions

3- To reflect on the importance of cell pathobiology in the context of biomedical sciences

4- To read, interpret, and build on the primary literature with confidence and competence

Additional Learning Outcomes – VPAT 660 (graduate students):
1- To apply the scientific method to identify an important, relevant research question and design appropriate experiments to address such question.

2- To develop a letter of intent (short research proposal)

Pre-requisites:
1- BIOL 111 Introductory Biology I and BIOL 112 Introductory Biology II are required.

2- BIOL 213 Molecular Cell Biology is recommended.

3- Junior and/or Senior classification or Instructor approval (undergraduate students).
Instructor:
Gonzalo M. Rivera, DVM, PhD
Room 212 VMA, College of Veterinary Medicine and Biomedical Sciences
Telephone number: 979 458-0128
Email address: grivera@cvm.tamu.edu
Office hours: after class and by appointment

I received a DVM in my native Argentina and completed my graduate work at Cornell University (PhD in Physiology). Subsequently, I received postdoctoral training in Cell Biology and Signaling at the University of Connecticut Health Science Center. I am currently an Associate Professor in the Department of Veterinary Pathobiology in the College of Veterinary Medicine and Biomedical Sciences at Texas A&M University. My research interests center around cellular and molecular aspects of cancer and vascular biology.

Suggested Textbook:
Essential Cell Biology (4th), Edited by Bruce Alberts et al. (Garland Science)

Selected review articles and reports of original research will be indicated.

Your Perspective is the Key to Success:
I am guided by the certainty that we can make a difference if we give our best effort on a day by day basis. You have embarked in an exciting career in biomedical sciences and may soon become a member of a team that discovers new life-saving therapies or provides outstanding patient care. Regardless, your best contributions will stem from a continuous, lifelong process of learning! I hope this course will be an important building block in your career. Success in this class and in your future endeavors relies on three pillars: curiosity, dedication, and respect for our community of learning. You are in the right place and at the right time to fully engage in an exciting learning experience.

Learning Process:
The course will consist of two weekly sessions including a lecture and a group discussion. Class attendance is essential for your success. You are expected to be familiar with material to be covered during group discussions and be prepared to engage through productive contributions, i.e. timely and thoughtful comments and relevant questions.

Student Evaluation:
Final grade assignments: A=90-100%, B=80-89%, C=70-79%, D=60-69%, F=<60%
VTPB 460 (undergraduate students): a total of 200 points are available
VPAT 660 (graduate students): a total of 300 points are available

Class attendance: 20 points
In class discussions: 60 points (see rubric below)
Exam 1: 60 points
Exam 2: 60 points
Letter of Intent: 100 (graduate students only)
Group Discussions - Participation Rubric:

A discussion is a collective exploration of issues or a productive exchange of viewpoints. To stimulate active learning, VTPB 460 / VPAT 660 Mammalian Cell Pathobiology will involve discussions of reports from the primary literature. By participating in discussions, you chose to step out of your comfort zone. Doing so in a protective environment, our community of learning, will enhance your capacity to recognize changing realities and adjust creatively to future professional demands.

The goals of participative discussions are:

a. To stimulate critical analysis of assigned reading material. Progressively, this exercise will help improve your ability to discern and integrate key concepts.

b. To further problem-solving skills. Reaching a sound interpretation of data will enhance your ability to design a research project or solve a case study.

c. To encourage the practice of good communication skills, both during formal presentations and informal discussions.

d. To foster our sense of “community of learning” by taking responsibility in preparing for the class, developing good listening skills, showing respect for the work of others, and enriching the classroom atmosphere by asking questions and making relevant comments in a timely manner.

The ground rules guiding participative discussions are:

a. Manuscripts, provided by the instructor at least one week in advance, must be thoroughly reviewed by each student before class.

b. Each student is expected to contribute to the overall discussion of the manuscript. Toward this aim, each student will complete a summary (suggested format: bullet points/2 power point slides) focusing on the introduction (slide 1) and one figure of the manuscript that will be selected by the instructor (slide 2). Students are expected to read attentively and summarize key content using their own words (i.e. lifting paragraphs from the text is unacceptable). The summary must be forwarded to the instructor no later than 5 PM the day before the discussion.

c. The student will receive no credit in case of absence without justification or failure to forward the summary to the instructor by the deadline indicated above.

d. Discussions will be led actively by rotating teams of 2 students. The instructor will participate as moderator. Members of the team designated to lead the discussion will work cooperatively (i.e. team members are expected to interact, exchange ideas and coordinate responsibilities) to plan the entire discussion session.

e. Teams will be responsible for organizing and conducting the discussion of the primary report focusing on background/significance, results/data, and discussion/future directions, following guidelines detailed below. It is not enough to jump into a descriptive account of some of the data. Teams are expected to begin by placing the topic of discussion in context – how the research fits in the bigger scheme of human and/or animal health – and develop a strategy to bring participants’ attention to relevant
information/antecedents. The leading team is responsible for stimulating participation by asking participants well formulated, important questions. Team members are also expected to field relevant questions from participants, including conceptual and methodological aspects of the research.

**Evaluation of participation in class discussions:**

A student’s contribution (both summary and overall discussion) will be evaluated according to the following criteria:

<table>
<thead>
<tr>
<th>Quality of summary and level of participation</th>
<th>Points</th>
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</thead>
<tbody>
<tr>
<td><strong>Insufficient:</strong></td>
<td>2</td>
</tr>
<tr>
<td>• Essential concepts and/or approaches not addressed in the summary. Insubstantial overall contribution or adequate contribution only on aspects/sections of the manuscript.</td>
<td></td>
</tr>
<tr>
<td><strong>Adequate:</strong></td>
<td>4</td>
</tr>
<tr>
<td>• Essential concepts and/or approaches clearly captured in the summary. Adequate contributions on much of the manuscript.</td>
<td></td>
</tr>
<tr>
<td><strong>Excellent:</strong></td>
<td>7</td>
</tr>
<tr>
<td>• Enhanced explanation of essential concepts and/or approaches through additional research, illustration, inclusion of relevant examples, etc. Enrichment of overall discussion through interventions leading to appropriate data interpretation, conceptual clarity and integration.</td>
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</tbody>
</table>

**Method for analysis of primary literature**

To prepare for discussions/write the summary, students are expected to use the guiding questions suggested for each area of focus indicated below:

**a. Background/Significance**

What is the importance of the topic in the field of study and relationship to human (and/or animal) health/disease?

What is the status quo/current understanding?

What is the gap in the knowledge?

What is the overall working hypothesis?

**b. Results/data**

Note: *It is impossible to cover every piece of information summarized in a publication in just over one hour! For each figure, you should make every effort to identify (use your judgment) critical experiments/subset of data that should be brought into focus. For each subset of related experiments (i.e. each figure):*
Identify the research question or *working hypothesis*.

Briefly state the *approach* or key aspects of the experimental strategy: is the approach adequate? Were complementary reagents/methods used? Is the approach/method reliable/reproducible?

Assess the *quality* of the data: are the results strong/convincing? Is there sufficient consideration of statistics? Are the results presented with clarity?

Describe finding – identify *controls and experimental groups*. Are important controls missing?

State author’s conclusion(s) – do you agree? Does the data support the conclusion(s)?

c. *Discussion and future directions*

State succinctly the overall contribution of the study (new knowledge).

Are the results (various datasets) consistent?

How well does the new evidence articulate with previous findings?

What would be the next step in the investigation (new hypothesis)?

**Letter of Intent (graduate students only):**

This written assignment is very important for the following reasons: *i)* it represents ⅓ of your final grade, and *ii)* it will contribute to the training you need to succeed in the professional life, i.e. critical analysis, integration, organization, and communication of your ideas through a concise, accurate, and clearly written report. Ideally, the research proposal should be related to the student’s area of interest and represent an expansion of the student’s work by formulating an important question linking the student’s research with dysregulation of cell structure/function. The goal of the short research proposal is to engage students in an exercise of critical thinking – students are expected to integrate the knowledge gained through the reading assignments/participation in class and establish a link with their own research. Thus, students will identify an important question, formulate a provocative hypothesis, define goals, and devise an experimental strategy to address the research question. The proposal should be no longer than *two pages* (single space) excluding the references. *Yes, this is a challenging exercise!* However, by working diligently and utilizing available time and resources wisely, including discussions with instructor and/or major professor(s), the product of this exercise may be highly rewarding.

**Key components of a letter of intent:**

*Rationale:* Clearly articulate the rationale for the project by presenting the ideas and reasoning that support it. Include needs statement and relevant literature citations.

*Hypothesis and Objective:* State the hypothesis to be tested and the objective to be reached.

*Research Approach:* State the project’s specific aims and briefly describe the experimental approach to accomplishing the aims. Include expected outcomes and potential pitfalls.
Innovation: Describe how the proposed study is innovative.

Impact: Describe the potential short-term and long-term impact of the proposed study.

Timeline for the development of the letter of intent:
1. Brainstorming and identification of your research question. Meet with the instructor to present your ideas, discuss with your professor(s) as appropriate. Draft an outline of your project. **Outline due on 2/04/2020.**
2. Articulate a brief background/rationale, hypothesis and aim(s), and design of your experiments. This is intended to be a preliminary document, so I understand it will be work in progress. **Initial draft due 3/03/2020.**
3. Expand and revise your draft. Use this period of time to do further work on your project and include the suggestions from your instructor and professor(s). **Revised draft due 4/07/2020.**
4. Refine every aspect of your project including content and formatting/presentation. **Final letter of intent due 04/30/2020.**

### Course Topics and Schedule:

<table>
<thead>
<tr>
<th>Date</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/14 &amp; 1/16</td>
<td>Model Organisms and Analytical Tools to Explore Disease</td>
</tr>
<tr>
<td>1/21 &amp; 1/23</td>
<td>Aberrant Signaling</td>
</tr>
<tr>
<td>1/28 &amp; 1/30</td>
<td>Cell Membrane Disorders</td>
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<tr>
<td>2/4 &amp; 2/6</td>
<td>Ciliopathies</td>
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<tr>
<td>2/11 &amp; 2/13</td>
<td>Cell Trafficking Disorders</td>
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<tr>
<td>2/18 &amp; 2/20</td>
<td>Cell Polarity Disorders</td>
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<tr>
<td>2/25 &amp; 2/27</td>
<td>Cell Transdifferentiation</td>
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<tr>
<td>3/3 &amp; 3/5</td>
<td>Review / Exam 1</td>
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<tr>
<td>3/10 &amp; 3/12</td>
<td>Spring Break</td>
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<tr>
<td>3/17 &amp; 3/19</td>
<td>Aberrant Cell Migration</td>
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<tr>
<td>3/24 &amp; 3/26</td>
<td>Altered Cell Mechanotransduction</td>
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<tr>
<td>3/31 &amp; 4/2</td>
<td>ER stress and Unfolded Protein Response</td>
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<tr>
<td>4/7 &amp; 4/9</td>
<td>Cell Death &amp; Autophagy</td>
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<tr>
<td>4/14 &amp; 4/16</td>
<td>Cellular Senescence</td>
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<tr>
<td>4/21 &amp; 4/23</td>
<td>Host Cell-pathogen Interactions</td>
</tr>
<tr>
<td>4/28</td>
<td>Review</td>
</tr>
<tr>
<td>4/30</td>
<td>Letter of Intent due (graduate students only)</td>
</tr>
<tr>
<td>5/5</td>
<td>Exam 2</td>
</tr>
</tbody>
</table>
Students with Disabilities:
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe that you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.
Students who have been certified as disabled by the University should visit Dr. Rivera as soon as possible after the beginning of the semester to ensure that suitable arrangements are made. We will do our best to ensure that disable students are accommodated.

Academic Integrity Statement and Policy:
“An Aggie does not lie, cheat, or steal or tolerate those who do.” Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System. For additional information, please visit: http://aggiehonor.tamu.edu

Attendance Policy:
The University views class attendance as the responsibility of an individual student. Class attendance is expected and helpful. To aid in understanding and studying the material, additional material will be presented in class that is not included on the overheads. Handouts occasionally will be employed. As noted by the approved modifications of TAMU Student Rule 7, the instructor sets the policy for absences related to injury or illness. Policy for this class will follow University regulations as detailed in University rules and unexcused absences are available on-line at http://student-rules.tamu.edu/rule07
Course Change Request

New Course Proposal

Date Submitted: 06/21/18 2:43 pm

Viewing: VTMI 626: Disease Detection, Surveillance and Risk Assessment

Last edit: 06/22/18 8:19 am
Changes proposed by: kathiesmith

<table>
<thead>
<tr>
<th>Contact(s)</th>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Kathie Smith</td>
<td><a href="mailto:KSmith@cvm.tamu.edu">KSmith@cvm.tamu.edu</a></td>
<td>9798452851</td>
</tr>
</tbody>
</table>

Course prefix: VTMI  
Course number: 626

Department: Veterinary Pathobiology  
College/School: Veterinary Med & Biomedical Sc

Academic Level: Graduate  
Academic Level (alternate): Undergraduate

Effective term: 2019-2020

Complete Course Title: Disease Detection, Surveillance and Risk Assessment

Abbreviated Course Title: DISEASE, SURVEY & RISK ASSESS

Catalog course description:
Animal health and food safety diagnostic test evaluation, disease surveillance design and analysis and quantitative risk assessment.

Prerequisites and Restrictions:
STAT 651 or equivalent, or approval of instructor.

Concurrent Enrollment: No

Should catalog prerequisites / concurrent enrollment be enforced?: No

Crosslistings: No  
Crosslisted With:  

Stacked: No  
Stacked with:  

Semester: 4  
Credit Hour(s): 4  
Contact Hour(s) (per week):  
Lecture: 3  
Total: 5  
Lab: 2  
Other: 0

Repeatable for credit?: No  
Three-peat?: No

CIP/Fund Code: 2613090002

In Workflow
1. VTPB Department Head
2. Curricular Services Review
3. VM Committee Preparer GR
4. VM Committee Chair GR
5. VM College Dean GR
6. GC Preparer
7. GC Chair
8. Faculty Senate Preparer
9. Provost II
10. President
11. Curricular Services
12. Banner

Approval Path
1. 06/19/18 8:39 am  
Ramesh Vemulapalli (rvemulapalli): Approved for VTPB Department Head
2. 06/21/18 10:07 am  
Terra Bisse (t.bisse): Rollback to Initiator
3. 06/21/18 2:51 pm  
Ramesh Vemulapalli (rvemulapalli): Approved for VTPB Department Head
4. 06/22/18 4:25 pm  
Terra Bisse (t.bisse): Approved for Curricular Services Review
5. 06/27/18 3:19 pm  
Kathie Smith (kathiesmith): Approved for VM Committee Preparer GR
6. 06/27/18 6:27 pm  
Mike Crisciello (crisci): Approved for VM Committee Chair GR
7. 06/28/18 9:12 am  
Robert Burghardt (rburghardt): Approved for VM College Dean GR
8. 07/03/18 8:41 am  
LaRhesa Johnson (lrjohnson): Approved for GC Preparer
VTMI 626: Disease Detection, Surveillance and Risk Assessment

Default Grade Mode: Letter Grade (G)

Alternate Grade Modes:
- Satisfactory/Unsatisfactory

Method of instruction:
- Lecture and Laboratory

Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education)
- No

Will this course be taught as a distance education course?
- No

Is 100% of this course going to be taught in Texas?
- Yes

Will classroom space be needed for this course?
- Yes

This will be a required course or an elective course for the following programs:

- Required (select program)
- Elective (select program)

<table>
<thead>
<tr>
<th>Program(s)</th>
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</thead>
<tbody>
<tr>
<td>(MS-BIMS) Master of Science in Biomedical Sciences</td>
</tr>
<tr>
<td>(PHD-BIMS) Doctor of Philosophy in Biomedical Sciences</td>
</tr>
</tbody>
</table>

Course Syllabus

Syllabus:
Upload syllabus

Letters of support or other documentation:
No

Additional information:

Reviewer Comments:
- Terra Bissett (t.bissett) (06/21/18 10:06 am): Minor edits made to form.
- Terra Bissett (t.bissett) (06/21/18 10:07 am): Rollback: Prerequisites and restrictions: “Ideally,...” statement regarding recommended course is not considered prerequisites and restrictions, please update; Questioning lab contact hour of 1 - Lab contact hours must be 2 or 3 to receive 1 semester credit hour; Syllabus: provide correct link to Aggie Honor Code under course grades section.
- Terra Bissett (t.bissett) (06/22/18 4:25 pm): Updates received.

Reported to state?
Add
VTMI 626: Disease Detection, Surveillance and Risk Assessment

Course Syllabus, Spring Semester 2021

Instructor: H. Morgan Scott, DVM, PhD
Professor of Veterinary Pathobiology
Phone: (979) 847-6197
Email: hmscott@cvm.tamu.edu
Office: VMR 178, Research Annex

Office Hours: After class on Tuesdays and Thursdays (4:00 pm), or by appointment.

Meeting Time: This is a four-credit graduate-level course consisting of two 1.25 hour lectures per week and a two 1.25 hour hands-on computer laboratories. A WIFI-enabled laptop computer loaded with MS Excel (2010 or newer) is required to participate fully during in-class demonstrations and to complete homework assignments. Access to Texas A&M University VOAL will also be required to utilize specific software packages (Stata, Decision Tools Suite).

Lecture: Tuesdays, 12:45 p.m. – 2:00 p.m., Rm. 113 VIDI
               Thursdays, 12:45 p.m. – 2:00 p.m., Rm. 113 VIDI

Computer Laboratory: Tuesdays, 2:30 p.m. – 3:35 p.m., Rm. 115 VIDI
                                      Thursdays, 2:30 p.m. – 3:35 p.m., Rm. 115 VIDI

Course Description: This course is an intermediate-level graduate course in animal health and food safety diagnostic test evaluation, disease surveillance design and analysis, and quantitative risk assessment. The course is suitable for both masters and doctoral-level students in any field with an interest in the application, interpretation, and understanding of infectious diseases in relation to screening/diagnostic, surveillance, and risk analysis concepts in a primarily veterinary setting. The course will focus on examples related to animal health and pre-harvest food safety, but graduate students in the related fields of animal science, food science, human public health, and wildlife and fisheries sciences will find the course useful for specific and appropriately defined research purposes. The course will advance the use of risk assessment and disease detection in the development of aggregated regional and national disease surveillance programs.

Prerequisites: STAT 651 or equivalent, or with approval by the instructor. Ideally, students will also have taken VIBS 608 (Epidemiological Methods I) or equivalent.
Course Grades: Grading of this course will be based on successful completion of two practical and applied laboratory assignments, a take-home midterm and final examination and a project presentation. The grading scale is standard: A=90-100%, B=80-89%, C=70-79%, D=60-69%, F=0-59%.

Attendance in all lectures and laboratories is expected and required. University-excused absences are allowed, subject to student rule 7: http://student-rules.tamu.edu/rule07. If a student needs to miss a class due to an excused absence makeup options will be made available as all course materials will be posted to eCampus.

Interaction and group work are encouraged in this course. Robust discussions are expected. Students are encouraged to discuss readings and laboratory assignments amongst themselves; however the answers submitted must be the result of an independent effort. For take-home examinations, students are NOT permitted to consult with others. The Aggie Honor Code http://aggiehonor.tamu.edu applies throughout the course and students are expected to comply with the spirit as well as the letter of the code. Independent work throughout the exam periods is expected.

Lab. assignment #1: 20%
Midterm take-home exam 20%
Lab. assignment #2: 20%
Final take-home exam 20%
Project presentation 20%

Course Objectives: The objectives of this course are to provide students with the necessary theoretical background and tools to:

1. Design and conduct studies to evaluate screening and diagnostic tests,
2. Correctly design and interpret results from surveillance systems,
3. Conduct a thorough risk analysis with respect to diseases or conditions of importance to maintaining high levels of food safety and veterinary and public health by focusing on the pre-harvest (on-farm) environment.

Course Philosophy: Determinations of disease / colonization status of individuals and groups are central themes for livestock producers, producer organizations, regulatory and private veterinarians, physicians, public health workers, and decision and policy makers in animal health and food safety. Development of disease detection and surveillance programs for foreign animal and zoonotic diseases, as well as foodborne pathogens has increased, because both testing and surveillance programs play an integral
part in prevention, detection, and recovery from foreign animal and zoonotic diseases. Quantitative risk assessment codifies the evaluation of disease / pathogen introduction potential and builds readily on the foundations of disease detection and surveillance system design principles. This course will prepare participants to make substantive contributions in the areas of research, public and private practice.

**Required Text (None):**
There is no required text. A listing with readings from published papers will be provided at the eCampus site for this course.

**Reference Texts (not required; instead, listed here for those who are interested):**


**Course content:**

1. **Introduction**
   Overview of the course; Overview of the application of screening and diagnostic tests in the development, application and analysis of surveillance systems, and risk analysis.

2. **Application of screening and diagnostic tests to populations**
   Review and elaboration on individual and aggregate-level testing, including sensitivity, specificity, predictive values, and apparent prevalence. Determining freedom from disease. Critically evaluate journal articles concerning evaluation, validation, and
application of tests. Statistical comparison of the performance of two or more tests.

3. **Surveillance**
   Review and elaboration on development and application of surveillance systems. Implement sampling procedures and perform sample size calculations for disease detection and surveillance. Analysis of surveillance data.

4. **Risk analysis**
   Review and elaboration on risk analysis paradigms. In this course, we will loosely follow the paradigms of the World Organization for Animal Health (formerly Office International des Epizooties, OIE). These paradigms are: Hazard identification, risk assessment, risk management, and risk communication.

Course Notices:

Assignments handed in late will be penalized 10% for each day that the assignment is late. Assignments are due by 23:59 on the due date.

Take-home exams will be penalized 25% of the grade for every day the exam is late. Take-home exams are due by 23:59 on the due date.

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**Tentative course schedule:**

<table>
<thead>
<tr>
<th>Week No.</th>
<th>Class Content</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Course introduction; Probability statistics and distributions; Quantitative test results; AP, TP, Se, Sp, PVP, NPV</td>
<td>Scott</td>
</tr>
<tr>
<td>2</td>
<td>Likelihood ratios; Receiver operating characteristics (ROC) curves;</td>
<td>Scott</td>
</tr>
<tr>
<td>3</td>
<td>Statistical comparison of test characteristics; Agreement among tests</td>
<td>Scott</td>
</tr>
<tr>
<td>4</td>
<td>Correlations among tests, and maximum likelihood; Bayesian estimation of test parameters</td>
<td>Scott</td>
</tr>
<tr>
<td>5</td>
<td>Test validation studies and application of tests in epidemiologic studies</td>
<td>Scott</td>
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<tr>
<td>6</td>
<td>Applying multiple tests; Aggregate testing</td>
<td>Scott</td>
</tr>
<tr>
<td>7</td>
<td>Introduction to surveillance; Design of surveillance systems</td>
<td>Scott</td>
</tr>
<tr>
<td>8</td>
<td>Surveillance and freedom from disease</td>
<td>Scott</td>
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<tr>
<td>9</td>
<td>Risk analysis: introduction and overview with an emphasis on risk assessment</td>
<td>Scott</td>
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<tr>
<td>10</td>
<td>Distributions from data and experts</td>
<td>Scott</td>
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<tr>
<td>11</td>
<td>Applying Monte Carlo processes in probabilistic scenario analysis</td>
<td>Scott</td>
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<tr>
<td>12</td>
<td>Quantifying uncertainty; Event tree models</td>
<td>Scott</td>
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<tr>
<td>13</td>
<td>Modeling dependencies; Scenario and sensitivity analysis</td>
<td>Scott</td>
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<tr>
<td>14</td>
<td>Risk assessment outputs; Critical review of food safety and animal health risk assessments;</td>
<td>Scott</td>
</tr>
</tbody>
</table>

Assignment #1 out 02/11/21, due 03/04/21: 20%
Midterm take-home exam out 03/04/21, due 03/11/21: 20%
Assignment #2 out 03/25/21, due 04/15/21: 20%
Final take-home exam out 04/29/21 due 05/06/21: 20%
Project presentation due 04/29/2021: 20%