Creative Arts
Texas A&M University
Core Curriculum Cover Sheet
Initial Request for a course to be considered for the Fall 2015 Core Curriculum

1. This request is submitted by (department name): Veterinary Integrative Biosciences

2. Course prefix and number: VIBS 447 3. Texas Common Course Number: N/A

4. Complete course title: Neurophysiology of Music 5. Semester credit hours: 2 hr

6. This request is for consideration in the following Foundational Component Area:
   - Communication
   - Mathematics
   - Life and Physical Sciences
   - Language, Philosophy and Culture
   - Creative Arts
   - American History
   - Government/Political Science
   - Social and Behavioral Sciences

7. This course should also be considered for International and Cultural Diversity (ICD) designation:
   - Yes

8. How frequently will the class be offered? Every summer; may be offered during additional semesters in the future

9. Number of class sections per semester: 1

10. Number of students per semester: 25

11. Historic annual enrollment for the last three years: NA

   This completed form must be attached to a course syllabus that sufficiently and specifically details the appropriate core objectives through multiple lectures, outside activities, assignments, etc. Representative from department submitting request should be in attendance when considered by the Core Curriculum Council.

13. Submitted by:

   Course Instructor: 1/12/2016
   Date

   Approvals:

   Department Head: 1-12-2016
   Date

   College Dean/Resistance: 1/5/16
   Date

For additional information regarding core curriculum, visit the Texas Higher Education Coordinating Board website at www.thecb.state.tx.us/corecurriculum2014

See form instructions for submission/approval process.
Texas A&M University

International and Cultural Diversity Cover Sheet

Request for a course to be included in the University Graduation Requirement for International and Cultural Diversity

1. This request is submitted by (department name): Veterinary Integrative Biosciences
   Course prefix and number: VIBS 447

2. 3. Texas Common Course Number: NA

4. Complete course title: Neurophysiology of Music
   Frequency the class will be offered: Every summer; may be offered in spring and summer in the future

5. Semester credit hours: 2 hr

6. Number of sections per semester: 1

7. Number of students per semester: 25

9. Historic annual enrollment for the last three years:
   2014-2015: NA
   2013-2014: NA
   2012-2013: NA

10. Statement on how this course meets the criteria for International and Cultural Diversity:
    This study abroad course uses science as a tool to explore the creation and enjoyment of music. The course is primarily going to be taught in Germany. Therefore, the course will focus on German and Austrian composers and their works. The genetics of musical talent will be explored with the lineages of composers such as Strauss. As part of these discussion, the culture of the time and living conditions will be included as context. Discussions of the physiology and anatomy of vocal production will include the castrati and why female singers were not allowed in stage productions. Although German culture will be focused on, overall European history will be discussed as necessary to provide context for why things, such as castrati or multiple marriages, were occurring. Part of this course will include discussing the use of music as symbols by the third Reich and the economics of music.

11. Course Instructor

12. Department Head

13. College Dean/Designee

Date

Submit this form and current course syllabus to fso.ccc@tamu.edu or Kristin Harper, TAMU 1125.

See form instructions for submission/approval process.
Texas A&M University
Core Curriculum
*Initial Request for a Course Addition to the Fall 2016 Core Curriculum*

**Foundational Component Area: Creative Arts**

In the box below, describe how this course meets the Foundational Component Area description for Creative Arts. Courses in this category focus on appreciation and analysis of creative artifacts and works of human imagination. Courses involve the synthesis and interpretation of artistic expression and enable critical, creative, and innovative communication about works of art.

The proposed course must contain all elements of the Foundational Component Area. How does the proposed course specifically address the Foundational Component Area definition above?

In this course, students will explore how we create music. Neurophysiology of music analyzes music through the lens of the human sensory system and brain. There will be a dual emphasis on how we hear and create sound. Lineages of composers such as Strauss will be explored to facilitate students critically evaluating how musical talent is inherited. The architecture of musical spaces will be explored and how different instruments would sound will be analyzed and discussed. Outside of class students will listen to classical compositions and participate in class discussion how these instruments were developed and why.

The lectures are designed to walk students through the creative process, and biological underpinnings, of musical expression. Using musical compositions, musical spaces, and famous composer histories, students will evaluate how compositions were created. As they develop ideas, students will discuss these in class with each other. These discussions will form the basis of a semester-long research project, as part of a C course requirement. In this project, students will select one aspect of human interaction with music, e.g. the coevolution of sacred spaces and polyphonic music, and do an in-depth study of the literature, both scientific and musical, about their topic.

Each research project will include a formal presentation. During this presentation, students will present their topic and findings to the class. Each presentation will include the development of an individual topic—including how it is a unique perspective—as well as the findings. Students will meet individually with the instructor for several rounds of developmental feedback during the semester. An emphasis on creative presentations will be emphasized and musical elements incorporated into the presentation in a variety of ways, including performances and played compositions, will be required.

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**Core Objectives**

Describe how the proposed course develops the required core objectives below by indicating how each learning objective will be addressed, what specific strategies will be used for each objective and how student learning of each objective will be evaluated.

The proposed course is required to contain each element of the Core Objective.

**Critical Thinking (to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information):**

The major project during the semester is a research paper and presentation. Student will spend an entire semester immersing themselves into one aspect of music completely. Each student will be required to work closely with the professor to identify acceptable musical topics. Students will be identify topics that highlight and incorporate aspects of creativity that has led to and been demonstrated in the music of classical composers. Part of the research paper will include an analysis and exploration of at least one composition as an illustration of their thesis.
Texas A&M University
Core Curriculum

Initial Request for a Course Addition to the Fall 2016 Core Curriculum

For example, if students choose to write about hand size and the development of the modern piano, they may analyze and compare Chopin’s scores to Beethoven. Part of this paper would have to include a discussion of how the composer’s physical limitations affected how and what they composed. Part of the evidence would include scores to illustrate the range each composer worked with for each hand, images of historical pianos, and images or descriptions of the composers’ hand sizes.

Students will most likely have to talk with researchers and musicians as part of this research project. They will have to integrate the information from a variety of scientific literature, books on musical history and literature, and interviews to create a research topic.

Communication (to include effective development, interpretation and expression of ideas through written, oral and visual communication):

Students will explore the various connections between music and physiology/anatomy with reflective writing. They will have to triangulate a topic with their opinion, and multiple points in scientific/musical literature and books. They will develop the ability to integrate information from conflicting sources.

The final step of the research project will be giving an oral presentation that includes visual examples such as PowerPoint slides, videos, and/or musical demonstrations to the instructor and class. Students must present their thesis and findings. This must include at least one composition with the accompanied analysis and an explanation of how the student’s analysis supports their thesis. Students will have to use scores, instruments/images of instruments, and images of musical spaces to illustrate their points (depending on what their thesis is) in their presentations. Depending on the student’s musical aptitude and willingness, they can perform as part of this presentation to illustrate a point.

As part of this research and presentation, students will have to work most likely have to contact and interview researchers and musicians to answer questions. The students will have to formulate their questions in an understandable way and will learn how to ask questions in a way to obtain information they need.

Teamwork (to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal):

Lectures include extensive time for guided peer interaction where students will discuss various aspects of their reflections and research project. With the class predominately taught during trips to places such as an organ manufacturing business, the Zemperoper, and museums such as the Haus der Musik (Museum of sound) and the Wien Museum Johann Strauss Wohnung (Johann Strauss Dynasty Museum), students will typically be discussing the lesson while exploring exhibits and spaces. The instructor prompt students, guiding them through each lesson. Students will be broken into small groups of 3-4 and given a chance to discuss their perspectives and develop answers to each question. Each class session, whether in a lecture hall or on a trip, will use a series of questions to guide students to concepts central to the course.

During lecture periods, students will also be given the time to initially discuss, and then bring in pieces of their research projects for peer-review, feedback, and suggestions with each other. This provides each student the opportunity critically analyze and provide constructive feedback to classmates as part of a group dynamic.

As part of their research projects, students may (and will be encouraged to do so) have to contact both scientists, musicians, and music historians. They may have to create and develop collaborations to complete their research projects with all appropriate documentation.
Texas A&M University

Core Curriculum

Initial Request for a Course Addition to the Fall 2016 Core Curriculum

Social Responsibility (to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities):

Because this course is designed to be taught as part of an intensive six-week study abroad program in Germany, the course focuses on primarily German and Austrian composers and their compositions.

Part of the course will focus on how Wagner associated Beethoven’s works with the early Nazi regime and how Hitler used Beethoven compositions for crowd control. Course discussions will include how national symbols, such as Beethoven was to the German people, were exploited to manipulate crowd emotions with propaganda.

Course trips will be integral to the class, composing most of the class time. Students will visit an organ manufacturing business to see how instruments are created. Part of this discussion will include the cost in man-hours and in money for a single instrument. This will lead to exploring how music was a thriving aspect of the economy during the classical period in Germany. While in Berlin, students will tour the music district and see how the music industry is currently an economic force.

Along with the musical and scientific aspects, there will be an underlying cultural component. The purpose of the trips and discussions will include discussions of how music has been an integral part of the German culture. This will include a discussion of the economics of music for the German people, the symbolism of German music, and how both of these have changed over time.

Please be aware that instructors should be prepared to submit samples/examples of student work as part of the future course recertification process.
Course title and number  VIBS 447: Neurophysiology of Music
Term (e.g., Fall 200X)  Summer 2, 200X
Meeting times and location  TBD

Course Description and Prerequisites

This course delves into the anatomy, biology, and physiology of musical capability and talent. Lectures and discussion cover a range of topics including the anatomy of the ear, the neurophysiology underlying the capacity to hear music, and the genetics of musical talent. This course is part of a study abroad program and therefore musical compositions and composers specific to Germany and Austria will be used as models during the course.

Course Prerequisites
Junior or senior classification

Learning Outcomes

Students will be able to explain what specific areas of the brain are involved in musical capability.

Students will be able to describe the current understanding of genetics underlying musical talent and heritability.

Students will be able to describe the biomechanical and neurophysiological pathways involved when hearing a musical composition.

Students will be able to explain the evolution of sound spaces, such as cathedrals and opera halls, using the physics of sound waves and physiology of hearing.

Instructor Information

Name  Micah J. Waltz
Telephone number  979-862-8152
Email address  mwaltz@cvm.tamu.edu
Office hours  TBD
Office location  47E Veterinary Teaching Hospital

Textbook and/or Resource Material

Assigned primary literature and selected music.
Grading Policies
Grading is on a pass/fail basis. To pass the course students must attend all lectures barring university approved absences. Students must participate in class discussions and write a final reflection on a topic of their choice (approved by the instructor) as part of the course.

Grading breakdown:
Journaling Weekly entries 25%
Final Reflection/ 750 Words 25%
Research Project Due by 11:59 PM online the last day of class
Participation See participation rubric 50%

Attendance and Make-up Policies
Because this is a study abroad course, lectures may consist of or include museums, tours, etc. No makeup work is accepted except for university-excused absences. The full list is available at http://student-rules.tamu.edu/rule07.

Course Topics, Calendar of Activities, Major Assignment Dates

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<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Required Reading</th>
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<tbody>
<tr>
<td>1</td>
<td>Genetics of musical talent</td>
<td>Assigned primary literature</td>
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<tr>
<td>1</td>
<td>Molecular biology of music</td>
<td>Assigned primary literature</td>
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<tr>
<td>2</td>
<td>Heritability of musical talent</td>
<td>Assigned primary literature</td>
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<td>2</td>
<td>Musical savant syndrome</td>
<td>Assigned primary literature</td>
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<tr>
<td>3</td>
<td>Neurophysiology of musical processing</td>
<td>Assigned primary literature</td>
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<td>3</td>
<td>Neuroplasticity</td>
<td>Assigned primary literature</td>
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<tr>
<td>4</td>
<td>Physiology/anatomy of sound production: mouth, voice, and hands</td>
<td>Assigned primary literature</td>
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<tr>
<td>4</td>
<td>Physiology of sound perception/reception</td>
<td>Assigned primary literature</td>
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<tr>
<td>5</td>
<td>Physics of soundwaves</td>
<td>Assigned primary literature</td>
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<td>5</td>
<td>Acoustics</td>
<td>Assigned primary literature</td>
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<tr>
<td></td>
<td>- Final Reflection due by 11:59 PM</td>
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</table>
Other Pertinent Course Information

Reflective Writing
Reflective writing is a process where you write about your thoughts within the context of course material and other information. During the reflective process, you examine your understanding of and assumptions about the course material, identify concepts you agree or disagree with, and support your claims and conclusions with primary literature. The kind of reflective writing you will be doing is not merely descriptive or informative like a diary or journal should be, nor is it written just to yourself. This is a metacognitive process that requires you to be able to analyze, evaluate, and share your thought processes with an educated reader. It is critical reflective writing.

Course Themes
During this course, content will be presented and illustrated with four specific themes.

Genetics and heritability
The heritability of musical talent across multiple generations will be investigated, for example, the Strauss family pedigree will be examined in-depth at the Wien Museum Johann Strauss Wohnung. As part of this discussion, we discuss the evidence or lack thereof for the female musical talent and why. This will tie in with the History and Economics of Music theme by evaluating the differences between male and female performers and their value during the classical time period.

Physiology and anatomy of producing sound
The phenomenon of creating music involves intricate physiological processes to both hear and create. We will explore what anatomy is being activated, patterns of activation, and brain's ability to handle multiple streams of information simultaneously. As part of discussions about the role that perception of music plays in modifying physical production of sound, students will visit the Haus der Musik in Vienna and interact with various sound displays and exhibits about sound production and reception. After studying and discussing these pathways, students will analyze a musician playing in real-time.

Physics: Sound and Acoustics
The physical nature of soundwaves will discussed within the context of musical building acoustics and related excursions will include cathedrals and the opera house, Semperoper, in Dresden. As part of this, we will briefly visit the differences between monophonic and polyphonic music, such as Hildegard Von Bingen's compositions while at the Das Museum am Strom. The differences between monophonic and polyphonic music will be used as foundational knowledge for students to explain why cathedrals and opera houses are constructed in specific ways.

History and Economics of Music
We will explore how music was integrated into society during classical times and how that has changed throughout history to the present time. We will visit an organ maker in Bonn, observe the instrument-manufacturing process, and discuss the process of creating an instrument as well as the cost. The music district in Berlin will demonstrate how the music industry is still has a major economic role.

Wagner's anti-semitism and connections to the Nazi party will be used to discuss how German cultural icons, such as Beethoven, became tools that Hitler used to manipulate the people. As part of this theme, we will also visit the Federal museum of Germany History after WWII for a guided tour.

Excursions/Field Trips
This course is designed to complement Dr. Wasser's VTPP 401/BMEN 400: History of Human and Veterinary Medicine in Europe. Students are expected to be coenrolled in both courses. Therefore, students will participate in the excursions/field trips for both courses. Trips will include the Wien Museum Johann Strauss Wohnung (Johann Strauss Dynasty Museum in Vienna), Haus der Musik (Sound Museum in Vienna), Historisches Museum am Strom (Hildegard von Bingen Museum in Bingen am Rhein), the Semperoper (Opera house in Dresden), Haus der Gerschichte (the Federal museum of Germany History after WWII in Bonn), at least one cathedral, and city tours of Bonn, Cologne, Berlin, Dresden and Vienna.
Reflective Writing
Reflective writing is a process where you write about your thoughts within the context of course material and other information. During the reflective process, you examine your understanding of and assumptions about the course material, identify concepts you agree or disagree with, and support your claims and conclusions with primary literature. The kind of reflective writing you will be doing is not merely descriptive or informative like a diary or journal should be, nor is it written just to yourself. This is a metacognitive process that requires you to be able to analyze, evaluate, and share your thought processes with an educated reader. It is critical reflective writing.

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, at White Creek or call 845-1637. For additional information visit http://disability.tamu.edu.

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

*An Aggie does not lie, cheat, or steal, or tolerate those who do.*
Recertification

Social and Behavioral Science
Texas A&M University

Core Curriculum Course Recertification - PILOT

Cover Sheet

1. Course prefix and number: ALEC 450
2. Complete course title: Global Social Justice Issues in Agriculture
3. This request is submitted by (department name): ALEC
4. Contact Information for department representative coordinating Recertification (name): Gary Wingenbach
5. E-mail: wingenbach@tamu.edu
6. Faculty member from whom class sets were collected (name): Gary Wingenbach
7. E-mail: wingenbach@tamu.edu

8. Indicate the Foundational Component Area this course is in:
   - Communication
   - Creative Arts
   - Mathematics
   - American History
   - Life and Physical Sciences
   - Government/Political Science
   - Language, Philosophy and Culture
   - Social and Behavioral Science

9. Indicate the semesters this course has been taught and the enrollment each semester taught: (note: Spring 2011-2014 = 82 students)
   - Fall 2014  11
   - Spring 2015  15
   - Summer 2015
   - Fall 2015
   - Spring 2016
   - Summer 2016

10. Attach the course syllabus

11. Submitted by: 
    
    Course Instructor: 
    
    Date: 10/3/15

12. Approval:

    Department Head: 
    
    Date: 12/4/15

13. To submit recertification materials, follow directions on instructions for the Core Curriculum Recertification Cover Sheet.
Texas A&M University
Core Curriculum Recertification and Assessment - PILOT

Foundational Component Area: Social and Behavioral Sciences

In the box below, describe how this course met the Foundational Component Area description for Social and Behavioral Sciences. Courses in this category focus on the application of empirical and scientific methods that contribute to the understanding of what makes us human. Courses involve the exploration of behavior and interactions among individuals, groups, institutions, and events—examining their impact on individuals, society, and culture.

ALEC 450 - Global Social Justice Issues in Agriculture provides students with a forum to analyze local and global social justice issues that affect, and are affected by U.S.-based cultural beliefs and consumerism; students engage in data analyses, critical thinking, and intercultural competency building exercises to advance their communication and social responsibility skills. ALEC 450 requires students to develop global and culturally-sensitive perspectives through examination of two central questions: (1) what social justice issues exist in agriculture, and (2) how do U.S. tastes, preferences, and consumer demands promote social injustices in non-U.S. agricultural settings?

ALEC 450 is built on the combination of critical thinking, communication (verbal and written), and research skills to advance students’ logical analyses and social responsibility cognizance. Examination and application of intercultural views provides a foundation for weekly discourse on civic responsibilities to the state, nation, and world.

Core objectives for the Social and Behavioral Sciences Foundational Component Area:

1. Critical Thinking: to include creative thinking; innovation, inquiry; and analysis, evaluation, and synthesis of information
2. Communication: to include effective development and interpretation and expression of ideas through written, oral, and visual communication
3. Empirical and Quantitative Skills: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
4. Social Responsibility: to include intercultural competence: knowledge of civil responsibility; and the ability to engage effectively in regional, national, and global communities

For one representative course section (open to all majors, including a general population of students, not an Honors Section) taught in the year prior to this recertification request:

1. Describe how students are informed of the core objectives being addressed in this core curriculum course. Discussion of the core objectives addressed in this core curriculum course occurs during the first week, and repeatedly throughout the semester through in-class activities and course assignments. Likewise, students are asked to read the syllabus and sign a Syllabus Acknowledgement statement/contract at the start of the semester.

2. Describe how the course fosters student development related to each of the four core objectives. ALEC 450 enhances students’ critical thinking skills through collection, use, evaluation, and application of empirical data from the USDA-ERS, World Bank, UNFAO, etc., to establish knowledge about country-specific facts on hunger, poverty, trade, human rights, and agricultural production. These data (e.g., cocoa production in Ghana) are coupled with current global social justice issues (e.g., effects of chocolate consumption in the U.S. on child slavery in Africa) to produce individual and group written and verbal communications’ products. Of particular note, is the emphasis placed on four Critical Thinking Skills core areas known as 1) Evaluating Information; 2) Evaluating Ideas and other points of view; 3) Learning and problem solving; and 4) Communicating Ideas effectively. Critical Thinking Skills are practiced and assessed through multiple strategies including Critical Thinking Skills Activities (strengthen students’ abilities to assess information, identify problems, pose solutions, and communicate results), writing a Position Paper (gather factual
information, evaluate and synthesize themes, apply scientific research methods, and communicate findings effectively), and In-class Debate (assess scarce resource simulation and make life choices in the Hungry Decisions case study).

ALEC 450 enhances students' communication skills through Student-led Discussions (each student leads class discussion for 15 minutes. Student leaders provide visual aids and supplemental information to relevant current topics), Intercultural Exercises (students participate in the Hunger Banquet and Physical/Health Challenge simulations), writing an Analytical Paper (react to instructor prompt on global social justice issue; collect and judge value of science-based information; develop tenable solutions; conduct self- and peer-reviews of writing quality; and prepare final drafts using reviewers' comments), and Presentations (Analytical Papers are presented with visuals, learning activities, and are judged for most likely successful solution to overcome the social justice issue).

ALEC 450 enhances students' empirical and quantitative skills through access and application of data provided by USDA-ERS, USAID, CIA, UNFAQ, Freedom House, and the MDG Monitor. For example, students are presented Gapminder data on longevity and the HDI (Human Development Index). They are challenged to: 1) summarize patterns of results in graphs without making inappropriate inferences; 2) evaluate how strongly correlational-type data supports a hypothesis; 3) provide alternative explanations for patterns of results that have many possible causes; 4) provide relevant alternative interpretations for specific sets of results; and, 5) use basic mathematical skills to solve real-world problems. Students analyze data, record their findings, report their conclusions, and convince their peers about the implications of their conclusions.

ALEC 450 enhances students' social responsibility through the study of Bennett's Development Model of Intercultural Sensitivity and course assignments (in-class and community-based). Students examine social justice issues such as hunger, poverty, and classism in their local community, relate those issues to cultural values and beliefs systems, and transfer that knowledge to an examination of global social justice issues in agriculture. Students develop new perspectives about their civic responsibilities to improving their local and global communities through educated decision making skills. Those skills are enhanced when students: 1) separate relevant from irrelevant information when solving real-world problems; 2) use and apply relevant information to evaluate problems; 3) identify suitable solutions for real-world problems using relevant information; 4) identify and explain best solutions for real-world problems using relevant information; and, 5) explain how changes in real-world situations might affect solutions.

3. Describe how student learning of each objective was evaluated. Include explanation of materials used in lecture or assigned as required reading along with an evaluative summary of student learning related to the core objective.

Students' critical thinking skills are assessed through quizzes, CTS (Critical Thinking Skills) Activities, and a position paper.

Students' communication skills are assessed through individual student-led discussions, Intercultural exercises, conducting self- and peer-reviews of writing quality, and presentations of final papers.

Students' empirical and quantitative skills are assessed through data analyses acquired from USDA-ERS, USAID, CIA, UNFAQ, Freedom House, and the MDG Monitor. CTS Activities require students to synthesize data, determine correlational/associational inferences, and policy implications on social justice issues.

Students' social responsibility skills are assessed through completion of in-class activities related to intercultural sensitivity, economic status, etc., and discussion of such issues.
Texas A&M University  
Department of Agricultural Leadership, Education, and Communication  
ALEC 450: Global Social Justice Issues in Agriculture  
(Syllabus is subject to changes as resources change)

Instructor: Gary Wingenbach, Professor  
2116 TAMU, 261 AGLS  
wingenbach@tamu.edu  
Office: Walk-ins anytime  
Schedule: T – Th, 11:10-12:25, 117 AGLS  
Texts: Online media; all course materials and messages are posted in eCampus.

Description: In-depth and critical evaluation of current global social justice issues in agriculture and leadership skills necessary to effectively solve and manage issues in agricultural development. Weekly topics provide students with knowledge and understanding of teaching, research, and service opportunities for those seeking careers in global social justice and agricultural leadership.

Objectives: Upon completion of this course, students will be able to:
- Define global social justice issues in agriculture.
- Discern differences between scientific and unscientific information to form fact-based opinions on food, agricultural, and societal issues.
- Evaluate empirical data for local and global social issues on hunger, trade, human rights, etc.
- Practice self-assessment and reflection of written communications.
- Conduct peer reviews of others’ written communications.
- Practice individual leadership skills.
- Communicate ideas effectively.

Course Methods and Rules: This course helps you strengthen your career competencies. We agree to the following rules (TAMU Rules are explained in the last section).
1) Students will read assigned materials before class and will actively participate in class discussions.
2) All will be respectful of each other’s opinions during class discussions.
3) No cell phone or social media use is permitted in class.
   a) Silence or turn off cell phones before entering the classroom;  
   b) Social media use, except where needed in class discussions, is prohibited.  
   c) Face-to-face, civilized dialogue is a professional career competency; we will not denigrate this communication method with the presence of e-devices.
4) Excellent writing standards are expected on all assignments (not following these standards results in substantially lower scores).
   a) Every written assignment/project should be submitted as a publishable product.  
      i) Some opportunities are provided for "re-writes" to correct products.  
   b) Never, EVER, plagiarize someone’s work as your own; plagiarism can result in dismissal from Texas A&M University...it DOES result in an F in this course.  
   c) All written assignments/projects are subject to review using http://www.turnitin.com/en_us/login; plagiarized material will be found.  
   d) Proper grammar and punctuation (search Google) are mandatory.  
   e) Proper sentence structure (see Google) is required; i.e., no “tweet-talk” in written assignments; every sentence has a subject, verb, and (when needed) an object; and, no sentence fragments exist.  
   f) Proper paragraph construction (search Google) is required.  
   g) No first person (I, me, my, mine, our) use, unless noted in the rubric.  
   h) No contractions are used in written assignments.  
   i) Use the Publication Manual of the American Psychological Association to cite your sources.
5) No copyrighted materials (graphics, music, artwork, etc.) or designus are allowed.
6) Students will read “10 Things Every College Professor Hates.”
Topics: schedule could change, but will be communicated as quickly as possible.

Readings: All readings are on eCampus; readings may include academic articles, news, and websites.

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<th>Topics</th>
<th>Assignments</th>
<th>Points</th>
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<td>1: Jan. 18-22</td>
<td>Overview; Critical Thinking; Consumerism-Choice</td>
<td>eCampus</td>
<td>25</td>
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<tr>
<td>2: Jan. 23-29</td>
<td>Social Justice; Participatory Research; Advocacy vs. Activism</td>
<td>CTS 1</td>
<td>10</td>
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<td>3: Feb. 1-5</td>
<td>Intercultural Competencies, Perspectives, and Sensitivities</td>
<td>CTS 2</td>
<td>10</td>
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<td>4: Feb. 8-12</td>
<td>Millennium Development Goals: Data mining</td>
<td>Paper #1</td>
<td>150</td>
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<td>5: Feb. 13-19</td>
<td>Global Food Security, Poverty, and Hunger</td>
<td>Quiz 1</td>
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<td>6: Feb. 22-26</td>
<td>Local Food Security, Nutrition, and Obesity</td>
<td>CTS 3</td>
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<td>7: Feb. 29-Mar. 3</td>
<td>Rural Education Issues</td>
<td>Paper#2 Top.</td>
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<td>8: Mar. 7-11</td>
<td>Role of Women in Agriculture</td>
<td>CTS 4</td>
<td>10</td>
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<td>9: Mar. 21-25</td>
<td>Global Human Rights and Child Labor Issues</td>
<td>CTS 5</td>
<td>10</td>
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<tr>
<td>10: Mar. 28-Apr.1</td>
<td>Sustainable Agricultural Practices</td>
<td>Quiz 2</td>
<td>50</td>
</tr>
<tr>
<td>11: Apr. 4-8</td>
<td>Water, Environment, and Biodiversity</td>
<td>Paper#2 Rev.</td>
<td>50</td>
</tr>
<tr>
<td>12: Apr. 11-15</td>
<td>Megatrends in Agriculture</td>
<td>Paper #2</td>
<td>150</td>
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<tr>
<td>13: Apr. 18-22</td>
<td>Future of Agriculture and Social Justice Issues</td>
<td>Presentations</td>
<td>75</td>
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<tr>
<td>14: Apr. 25-29</td>
<td>Student Presentations; Peer Reviews</td>
<td>Discussion</td>
<td>75</td>
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<tr>
<td>May 2-3</td>
<td>Course Wrap-up, Lessons Learned</td>
<td>Discussion</td>
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<td>iReport: Possible Extra Credit Assignment Due (25 pts)</td>
<td>TOTAL</td>
<td>700</td>
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</table>

Assignments and Projects: materials submitted after due dates/times (see eCampus) incur a 10% reduction of possible points for each day late. Excused absences or prior arrangements helps to avoid these penalties.

Assignments are submitted on the eCampus website.

1) **Quizzes** (50 points each; 100 total): knowledge quizzes about global social justice issues in agriculture.

2) **CTS Activities** (10 points each; 50 total): Critical Thinking Skills' (CTS) activities strengthen students' abilities to assess information, identify problems, pose solutions, and communicate results. Students respond to prompts from real-world case studies (see eCampus for details). CTS activities may include worksheets, handouts, take home assignments/research and/or class discussion.

3) **Position Paper #1** (150 points; 1000-word minimum): Respond to an instructor prompt about a global social justice issue in agriculture, conduct research, support findings with factual information, and articulate position with compelling logical argumentative statements. Papers are graded on content and understanding of the issue, and must include and properly cite at least five scientific journal articles (see eCampus for details). Position Paper #1 includes practice writing, formative feedback, and revisions to the final graded product.

4) **Analytical Paper #2** (300 points; 2000-word minimum): Develop an analytical paper for a global social justice issue in agriculture. Reports must include tenable solutions to overcome the issue. Papers must 1) contain factual information, 2) evaluate and synthesize information from multiple refereed sources, 3) demonstrate problem solving skills, and 4) communicate findings effectively. Papers must include and properly cite at least 10 scientific journal articles (see eCampus for details). Analytical Paper #2 includes practice writing, formative feedback, self- and peer-assessments/feedback, and revisions to the final graded product. Analytical Paper #2 includes individual skill-building activities such as:
   i) **Topic Selection** (25 points): Choose one global social justice issue in agriculture (see eCampus).
   ii) **Peer- and Self-Reviews** (50 points): Conduct peer and self-reviews of draft papers (see eCampus).
   iii) **Instructor Draft Review** (50 points): Instructor evaluates content, mechanics, etc., (see eCampus).
   iv) **Instructor Assessment** (100 points): Instructor evaluates final graded product (see eCampus).
   v) **Presentations** (75 points): Present Analytical Papers. Presentations will be 10 minutes each, include visuals, learning activities, and professional effort (see eCampus for more details); Note: unexcused absence during Presentations results in a 50% reduction of the presentation score.

5) **Student-led Discussion** (75 points): Each student leads class discussion for 10 minutes on a specified global social justice issue in agriculture (assigned as pro- or con-based argument). Student-led discussions include visual aids, reference current events, answer peers’ questions, and are voted on for believability (see eCampus for more details). All discussion materials must be submitted one week prior to presentation date.
Grading:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percent</th>
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<tbody>
<tr>
<td>A</td>
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<tr>
<td>B</td>
<td>80 - 89</td>
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<td>C</td>
<td>70 - 79</td>
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<td>D</td>
<td>60 - 69</td>
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<td>F</td>
<td>&lt;59</td>
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References:


TAMU Rules:

Faculty Senate Statement on Plagiarism and Aggie Code of Honor: Scholastic misconduct is defined broadly as “any act that violates the rights of another student in academic work or that involves misrepresentation of your own work.” Plagiarism is one of the worst academic offenses, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated. Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student.

"An Aggie does not lie, cheat, or steal nor tolerate those who do"

The Aggie Code of Honor is an effort to unify the aims of all Texas A&M men and women toward a high code of ethics and personal dignity. For most, living under this code will be no problem, as it asks nothing of a person that is beyond reason. It only calls for honesty and integrity, characteristics that Aggies have always exemplified. The Aggie Code of Honor functions as a symbol to all Aggies, promoting understanding and loyalty to truth and confidence in each other. If you have questions about plagiarism, please consult the latest issue of the Texas A&M University Student Rules, which can be found online at http://student-rules.tamu.edu. Any suspected instances of scholastic dishonesty will be investigated and resolved according to the procedures outlined in the Aggie Honor System (http://aggiehonor.tamu.edu/).

Americans with Disabilities Act (ADA) Policy Statement: 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.

Attendance Policy: “The University views class attendance as the responsibility of an individual student. Attendance is essential to complete the course successfully. University rules related to excused and unexcused absences are located on-line at http://student-rules.tamu.edu/rule07.”

Copyright Policy: All handouts and supplements used in this course are copyrighted. This includes all materials generated for this class, including the syllabus, exams, review sheets, and lecture outlines. Materials may be downloaded or photocopied for personal use, and may not be given or sold to other individuals.

Syllabus Revision Policy: Revision to this syllabus will be made at the instructors' discretion. Changes in dates and topics will be announced in class and may not be communicated in writing.
Recertification

Life and Physical Sciences
Texas A&M University

Core Curriculum Course Recertification - PILOT

Cover Sheet

1. Course prefix and number: CHEM 102
2. Complete course title: Fundamentals of Chemistry II
3. This request is submitted by (department name): Chemistry
4. Contact Information for department representative coordinating Recertification (name): Elmo Mawk
5. E-mail: mawk@chem.tamu.edu
6. Faculty member from whom class sets were collected (name): Elmo Mawk
7. E-mail: mawk@chem.tamu.edu

8. Indicate the Foundational Component Area this course is in:
   - [ ] Communication
   - [ ] Mathematics
   - [x] Life and Physical Sciences
   - [ ] Language, Philosophy and Culture
   - [ ] Creative Arts
   - [ ] American History
   - [ ] Government/Political Science
   - [ ] Social and Behavioral Science

9. Indicate the semesters this course has been taught and the enrollment each semester taught:
   - [x] Fall 2014 _603/102_559/112_
   - [x] Spring 2015 _2057/102_2047/112_
   - [x] Summer 2015 _85/102_52/112_
   - [x] Fall 2015 _603/102_529/112_
   - [ ] Spring 2016 _2014/102_1956/112_(current enroll)_
   - [ ] Summer 2016 ____________

10. Attach the course syllabus

11. Submitted by: ________________ 12/18/2015
    Course Instructor
    ________________ 12/18/2015
    Department Head

12. Approval:

13. To submit recertification materials, follow directions on Instructions for the Core Curriculum Recertification Cover Sheet.
Foundational Component Area: Life and Physical Sciences.
In the box below, describe how this course met the Foundational Component Area description for Life and Physical Sciences. Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences.

**CHEM 102** and **CHEM 112** cover the topics of solutions, thermodynamics, kinetics, equilibrium, redox chemistry, inorganic chemistry and nuclear chemistry. In solutions the intermolecular attractive forces between molecules and ions are discussed. The interactions are used to explain freezing point and boiling point differences between similar and different compounds as well as the colligative properties of solutions, i.e., freezing point depression, boiling point elevation, vapor pressure lowering, etc. Colligative property changes for different solutions are predicted from calculation and exploitation of changes in colligative properties in the real world are discussed. Examples are calculating by how many degrees the freezing point of a 1.20 m aqueous solution will be depressed, how salt melts ice and snow in the winter, and how the boiling point of coolant in cars is adjusted to prevent boil over.

Catalysis (kinetics) is explained using the catalytic converter underneath our cars as an example. A discussion of the chemistry involved converting carbon monoxide to carbon dioxide over precious metals is included as well as what happens when a catalyst is poisoned, the catalytic converter catches on fire!

The discussion of buffers includes how changes in biological buffers affect our health and why buffering capacity is important. Also a discussion of how buffers are used in biochemical/genetics research is discussed. Students are taught how to pick the correct weak acid or weak base based on the pH required and the pKa of weak acids and bases. Students are shown how to calculate the amounts of weak acid/conjugate base or weak base/conjugate acid required to prepare the buffer.

Redox chemistry lends itself to a discussion of corrosion and corrosion prevention. Nuclear chemistry includes a discussion of fission versus fusion reactors, how these reactors function and the pros and cons of both types. The challenge of nuclear waste disposal and associated dangers is discussed. How to predict the types of radiation emitted by radioactive nuclides is discussed.

Students in **CHEM 112** perform experiments of two types. The first type is traditional experiments where students are asked to calculate physical constants from collected data. During the Spring 2015 semester, students performed experiments such as where the molar mass of a solute was calculated from colligative property data, identification of metal cations from color and chromatographic separation, and the equilibrium constant of an acid/base indicator using spectroscopy.

The second type of experiments relates chemical concepts to the Texas environment. During the Spring 2015 semester, students performed experiments such as the buffer capacity of the bicarbonate carbonate buffer system and the impact of increased atmospheric carbon dioxide on the pH of the ocean, the enthalpy change of a chemical reaction and how the measurement of heat flows relates to energy consumption, and calculating the salinity of ocean water samples using a silver nitrate precipitation titration.

Each semester **CHEM 112** students are given 2 weeks to perform a research project, where each student group synthesizes magnetic clay used to remove a dye from water. A dye is used instead of more dangerous environmental pollutants.

**Core objectives for the Life and Physical Sciences Foundational Component Area:**

1. **Critical Thinking:** to include creative thinking; innovation; inquiry; and analysis, evaluation, and synthesis of information
2. **Communication**: to include effective development and interpretation and expression of ideas through written, oral, and visual communication

3. **Empirical and Quantitative Skills**: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions

4. **Teamwork**: to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal

**For one representative course section** (open to all majors, including a general population of students, not an Honors Section) **taught in the year prior to this recertification request**:

1. Describe how students are informed of the core objectives being addressed in this core curriculum course.

   **Students are informed of the course objectives with the CHEM 102 syllabus. CHEM 112 does not list course objectives on the syllabus.**

2. Describe how the course fostered student development related to each of the four core objectives.

   **Critical Thinking**: in CHEM 112 students work together to develop an experimental method to determine the amount of Procion Red MX-5B removed from solution by a magnetic clay. Each group has to use previously learned techniques and chemistries to develop the method, and must evaluate the results of their method. This fulfills the innovation, inquiry, analysis, evaluation and synthesis of information requirements.

   **Communication**: Throughout the semester CHEM 112 students created graphs to communicate their results, completed data reduction analysis work sheets, answered discussion questions, wrote a technical abstract for an experiment and a paper for the research project. Visual and written communication objectives were met. During the research project each student group presents their proposed research procedure to the TA and discuss any changes the TA recommends, meeting the oral communication objective.

   **Empirical and Quantitative Skills**: The data reduction analysis section of the laboratory report has students analyzing their numerical and observational data to draw conclusions about each experiment. These conclusions were often expressed in assigned discussion questions, fulfilling the empirical and quantitative skills portion of the core objectives.

   **Teamwork**: Each student group works together to perform each experiment and to design the procedure for the research project.

3. Describe how student learning of each objective was evaluated. Include explanation of materials used in lecture or assigned as required reading along with an evaluative summary of student learning related to the core objective.

   **Critical Thinking**: During laboratory students are required to analyze and evaluate the data they collected. The analysis results are evaluated from the laboratory reports. The laboratory reports also assess how well each student can process what they have learned via discussion questions.

   **Communication**: The laboratory and research project reports are used to evaluate how well each student can communicate via written means (discussion questions) and visual means (graphs of collected data.)

   **Empirical and Quantitative Skills**: In the laboratory, the data reduction and analysis work sheets, part of each laboratory report, are used to assess this area. Lecture exams are also used to assess student’s empirical and quantitative skills.
Teamwork: The research project report evaluates teamwork via the group designed experimental procedure to measure the decrease in red dye concentration. TA observations of how each student group/pair works together can qualitatively assess student teamwork.
Welcome to Chemistry 102! The Merriam-Webster online dictionary defines chemistry as “a science that deals with the composition, structure, and properties of substances and with the transformations that they undergo.” An understanding of chemistry is important because chemistry can be found in almost every aspect of our daily lives. Chemistry, for example, is involved in preparing and cooking food, purifying water, developing and preparing medications, and energy production. Chemistry is also important in your academic career. For example, biologists, geneticists and biochemists use chemistry to study molecular biology, proteomics, and genomics; engineers use chemistry to design new materials and products; and geologists use chemistry to classify and describe minerals.

In chemistry 102, we are going to study chemical thermodynamics, kinetics, equilibrium, electrochemistry, and some nuclear and inorganic chemistry. My goal for this class is to prepare you for further chemistry studies: organic, physical chemistry, etc. To that end, I will be working problems during lecture, I will give online quizzes and I will prepare exams that heavily lean towards computational problems where applicable. The best way to prepare for this course is to work as many problems as possible and to spend 8-9 hours a week studying. I also encourage all students to take advantage of free tutoring, supplemental instruction and my office hours.

Course Description and Prerequisites
CHEM 102 (CHEM 1312, 1412*) Fundamentals of Chemistry II. (3-0) Credit 3. Theory and applications of oxidation-reduction systems; thermodynamics and kinetics; complex equilibria and solubility product; nuclear chemistry; descriptive inorganic and organic chemistry. Prerequisites CHEM 101, 111 or their equivalent. Concurrent registration in CHEM 112 required.

Required Materials
(2) A scientific calculator is required for use on exams. The use of a computer or any device with Internet access is not allowed during an exam.

Reading Assignments
The purpose of lecture is to further explain and reinforce comprehension of the reading material. It is in your best interest to complete the reading assignments prior to coming to class. We will cover chapters 14-20 and if time allows, chapter 22-23. Use the attached calendar to pace your reading.

Homework Assignments
Homework will be assigned using the OWL homework system (Online Web Learning). Homework assignments are due approximately every 2-3 weeks at 11:59 PM. See the calendar for due dates. Some assignments will contain more material than others. Each assignment score is reported as a percentage. The average of the six OWL assignment percentages will be used in calculating the course grade. OWL is currently found at https://login.cengage.com/cb/.

Exams
A total of 3 in-class exams will be given, each worth 100 points. In addition, there will be final exam worth 100 points. Make-up exams are available to persons with an excused absence. Contact me to schedule a make up within 1 week of missing the exam. Scheduling the make up prior to missing is preferred. The hourly exams may be multiple-choice questions, free response questions or a combination of both. The format for the final exam will be multiple-choice only. Make up exams are exclusively free response.
Grade Calculation
The 3 exams (100 points each), the final exam (100 points), the average of the 6 OWL homework assignments (10% points) are used to calculate the course average. The course average is calculated as a weighted average with each regular exam contributing 20%, the final exam 30% and the homework 10%.

Course average = (Exam 1)(0.20) + (Exam 2)(0.20) + (Exam 3)(0.20) + (Final Exam)(0.30) + (OWL average)(0.10)

For example, a student scores 80%, 75% and 70% on her regular exams, a 65% on the final exam and 100% on the OWL homework. Her average is (80*0.20)+(75*0.20) + (70*0.20) + (65*0.30) + (100*0.10) = 74.5%.

Letter grades will be assigned following the scale. Note that your grade depends only on your scores, and not on class averages.

\[
\begin{array}{ccc}
\geq 90.0\% &=& A \\
80.0 - 89.9\% &=& B \\
70.0 - 79.9\% &=& C \\
60.0 - 69.9\% &=& D \\
< 59.9\% &=& F
\end{array}
\]

Students missing a portion of the course, but having at least a 50% average will receive a grade of "I" (Incomplete) if they request an Incomplete and if they meet the University guidelines for receiving this grade.

Exam Administration
Each student will have a different seating assignment for each exam. The seating assignments will be posted a day in advance outside the classroom and on Blackboard Vista. If you are left-handed please request special seating before the first exam (see me.) Arrive at the exam on time. Bring two sharpened #2 pencils, your TAMU ID card, and the appropriate calculator. Calculators may not be shared during the exam, and they may not be programmable or have alphanumeric capabilities. See me if you are uncertain about your calculator. Any student attempting to use an unacceptable calculator will receive a zero for that exam. All non-test materials must be placed under your desk. Follow the directions on the front of your test. Do not write on the back of the scantron sheet. Failure to follow these directions may result in a withheld or zero score. Multiple-choice answers must be recorded on the scantron sheet. Failure to properly bubble personal information on scantron will result in a 5-point deduction. During the exam, keep all work covered. Talking or looking around the room may result in a withheld grade for the exam. Work carefully, but pace yourself to finish within the time allotted. After finishing the exam, remain in your seat until asked to leave. Exams can only be turned in during the exam period. Exams turned in after the allotted time will not be accepted.

Aggie Honor Code
"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://www.tamu.edu/aggiehonor/

Absences
Absences less than three days may require completion of the TAMU Explanatory Statement for Absence from Class form found at http://attendance.tamu.edu. Absences will only impact examinations. If you are going to miss an examination with a University excused absence, contact me prior to missing the examination. Documentation will be required in most instances for University excused absences. See http://student-rules.tamu.edu/rule7.htm to verify that your absence is excusable. If prior contact is impossible you must contact me by the end of the second working day after the absence to arrange make up work.

Copyright
The handouts used in this course are copyrighted. By "handouts," I mean all materials generated for this class, which include but are not limited to syllabi, quizzes, exams, lab problems or study sheets, in-class materials, review sheets, and additional problem sets, notes, etc. Because these materials are copyrighted, you do not have the right to copy the handouts, unless I expressly grant permission.

Copyright 2015, Elmo J. Mawk
Texas A&M Support Services for Students with Disabilities (845-1637)
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 the Department of Student Life, Services for Students with Disabilities, in Room B118 of Cain Hall. Their phone number is 845-1637. Their website is found at http://disability.tamu.edu. The Student Services office is very busy, so please make an appointment with them immediately if you feel you require assistance. If you have any questions, see me.

eCampus
The First Year Chemistry Program is on the World Wide Web: http://www.chem.tamu.edu/fyp/. All course material will be available via eCampus (http://ecampus.tamu.edu). Your grades will be posted via eCampus, in addition to old exams and other course material.

Student Course Outcomes
By the end of this course, students will be able to:

1) Calculate the change in melting point, boiling point, vapor pressure and osmotic pressure of a solution.
2) Describe the process by which a solute dissolves in a solvent, including any energy changes, for solids, liquids and gases.
3) Calculate the orders with respect to each reactant from experimental kinetics data, including the value of the rate constant k, using the method of initial rates or a graphical method.
4) Identify the overall order for a rate law from the units on the rate constant k. Use the integrated rate laws to calculate the concentration of a reactant at some time t if the initial concentration is known.
5) Understands and can explain the impact temperature, concentration and a catalyst on the rate of a reaction from a molecular viewpoint; and can calculate the resulting change in value of the rate constant k.
6) Determine the rate law from a proposed mechanism and recognize when the mechanism is in error.
7) Explain the differences in K_C, K_P and Q and use the expressions and values to calculate equilibrium concentrations for reactants and products.
8) Understand and explain the various theories describing acid-base behavior.
9) Calculate the pH of a weak acid or a weak base from the weak acid or weak bases equilibrium constant. Including the polyprotic weak acids.
10) Explain buffer behavior using the common ion effect and how to prepare and calculate the pH of a buffer.
11) Derive a titration curve for the reaction between strong acid-strong base, weak acid-strong base and strong acid-weak base reactions.
12) How to write solubility product expressions and calculate the molar solubility of a salt from its K_sp.
13) Use K_sp and Q_sp to predict whether a precipitation reaction will occur and the final ion concentrations for the salt.
14) Explain the second and third laws of thermodynamics, entropy and Gibbs free energy.
15) Calculate the value of ΔS, ΔH and T for given thermodynamic data under standard conditions.
16) Use the values of ΔS, ΔH and T to determine the temperature range over which a reaction is spontaneous or non-spontaneous.
17) Balance redox reactions in acid and base solution.
18) Read electrochemical cell notation to identify the cathode, anode, species being oxidized, reduced, oxidizing and reducing agents.
19) Use standard reduction potentials to identify the cathode, anode, species being oxidized, reduced, oxidizing and reducing agents and predict the voltage between two half cells and the direction of current flow.
20) Calculate the amount of current needed or the mass metal reacted with Faraday's law.
21) Calculate cell potential under nonstandard conditions with the Nernst equation.
22) Write the chemical formulas and name coordination compounds, including possible isomers.
23) Understand crystal field theory and how it is used to explain the electronic configurations and magnetic properties of complexes.
24) Understand and explain the importance of complex color to determine splitting energy, and the spectrochemical series to predict high and low spin complexes.
25) Write and balance a nuclear reaction. Explain what a radioactive decay series is and how the band of stability can be used to predict the type of radiation emitted by an isotope. Give examples of peaceful use of radioactive isotopes in medicine and science.
26) Understand the importance of radiation health and safety, the units of measurement and radiation dosing and effects.
27) Explain the difference between fission and fusion including the advantages and disadvantages of each.

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<thead>
<tr>
<th>Monday</th>
<th>Wednesday</th>
<th>Friday</th>
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<tbody>
<tr>
<td>January 19&lt;sup&gt;th&lt;/sup&gt;</td>
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<td>Martin Luther King’s Birthday</td>
<td>Review of Syllabus</td>
<td>CH 13 – Solutions and Their Behavior</td>
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<td>CH 14 – Chemical Kinetics</td>
<td>CH 14 – Chemical Kinetics Exam #1 Cut off New Material</td>
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<td>CH 16 – The Chemistry of Acids and Bases</td>
<td>CH 16 – The Chemistry of Acids and Bases Exam #2 Cut off New Material</td>
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<td>CH 16 – The Chemistry of Acids and Bases</td>
<td>CH 16 – The Chemistry of Acids and Bases</td>
<td></td>
</tr>
<tr>
<td>OWL 4 due at midnight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>March 30&lt;sup&gt;th&lt;/sup&gt;</td>
<td>April 1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>April 3&lt;sup&gt;rd&lt;/sup&gt;</td>
</tr>
<tr>
<td>CH 16 – The Chemistry of Acids and Bases</td>
<td>CH 17 – Other Aspects of Aqueous Equilibria</td>
<td>“Reading Day”</td>
</tr>
<tr>
<td>OWL 4 due at midnight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>April 6&lt;sup&gt;th&lt;/sup&gt;</td>
<td>April 8&lt;sup&gt;th&lt;/sup&gt;</td>
<td>April 10&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>CH 17 – Other Aspects of Aqueous Equilibria</td>
<td>CH 17 – Other Aspects of Aqueous Equilibria</td>
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<tr>
<td>April 13&lt;sup&gt;th&lt;/sup&gt;</td>
<td>April 15&lt;sup&gt;th&lt;/sup&gt;</td>
<td>April 17&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>CH 19 – Electron Transfer Reactions</td>
<td>CH 19 – Electron Transfer Reactions</td>
<td>CH 19 – Electron Transfer Reactions Exam #3 Cut off New Material</td>
</tr>
<tr>
<td>OWL 5 due at midnight</td>
<td></td>
<td></td>
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<tr>
<td>April 20&lt;sup&gt;th&lt;/sup&gt;</td>
<td>April 22&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>April 24&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>CH 19 – Electron Transfer Reactions</td>
<td>CH 19 – Electron Transfer Reactions</td>
<td></td>
</tr>
<tr>
<td>April 27&lt;sup&gt;th&lt;/sup&gt;</td>
<td>April 29&lt;sup&gt;th&lt;/sup&gt;</td>
<td>May 1&lt;sup&gt;st&lt;/sup&gt;</td>
</tr>
<tr>
<td>CH 19 – Electron Transfer Reactions</td>
<td>CH 25 – Nuclear Chemistry#</td>
<td></td>
</tr>
<tr>
<td>May 4&lt;sup&gt;th&lt;/sup&gt;</td>
<td>May 5&lt;sup&gt;th&lt;/sup&gt; (Tuesday)</td>
<td>May 8&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>CH 22 – The Chemistry of the Transition Elements (Omit 22.2)#</td>
<td>CH 22 – The Chemistry of the Transition Elements (Omit 22.2)#</td>
<td>Final Exam 10:30 am – 12:30 pm Room 100 Heldenfels</td>
</tr>
<tr>
<td>OWL 6 due at midnight</td>
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</table>

#Will be covered if time allows.


CHEMISTRY 112  
Fundamentals of Chemistry Lab II  
Spring 2015  

Laboratory Coordinator: Dr. Tak Leung, HELD 412  
tak.leung@chem.tamu.edu  
CHEM 112 IA: chem112@chem.tamu.edu

TA: ___________________________  
Section: _______________________

TA Office Hours in #406 HELD: _______  
Laboratory Room: _______________

TA Email: _______________________

Chemistry 112 builds upon the knowledge and experience gained in Chemistry 111.

Course requisite: The requisite for CHEM 112 is concurrent registration in CHEM 102. Therefore, if a student elects to drop either the lecture or lab course during the semester, then both courses must be dropped. Student Rule 1.16.4 includes the statement: “If lecture and companion labs are dropped at the same time, this will count as one Q-drop rather than two.”

After the 50th class day until the Q-drop deadline, students who have demonstrated active participation in both lecture and laboratory classes until that time may elect to drop either the lab or lecture course and maintain enrollment in the companion course.

Required Materials:
• Nonprogrammable scientific calculator
• Approved eye protection: Chemical splash goggles (fully enclosing goggles with four indirect vents) are required. These are the ONLY approved form of eye protection. No other goggles will be allowed.

Learning Outcomes: The experiments in this course investigate topics such as Beer’s law, freezing point depression, solubility, kinetics, equilibrium, buffering, and transition metal chemistry. They are designed to complement the lecture material presented in CHEM 102 or highlight common analytical techniques, such as chromatography or spectrophotometry. In CHEM 112 the primary focus of the laboratory exercises is no longer solely the manipulation of laboratory equipment and data collection. Instead an emphasis is placed on obtaining accurate data, data analysis and a broad-based understanding of the implications of the experimental results. After completing the initial experiments, with almost two semesters of general chemistry completed, students are adequately prepared to design and execute a two-week research project. This project requires that students combine general chemical knowledge, laboratory skills, analytical thinking and creativity into a short research project. The results of this project are reported formally in a scientific paper.

Safety: Student safety is a top priority in the Texas A&M Department of Chemistry. Protective eyewear, appropriate clothing and shoes that completely cover your feet must be worn at all times in the laboratory. Appropriate clothing includes pants or long skirts which come all the way down to the ankles so that no parts of the legs or feet are exposed. All Chemistry 112 students accept a Lab Safety Acknowledgement (LSA) on Howdy upon registration. Furthermore, students must view a safety video and pass a safety quiz given during the first class meeting. Any student who does not view the safety video and pass the safety quiz will not be permitted
to continue in CHEM 112. The safety guidelines associated with individual experiments are explained in the lab manual and will be presented at the beginning of each experiment. Prelab quiz questions regarding safety aspects specific to each experiment should be expected. Failure to adhere to any safety regulation while in the laboratory will result in a reduced performance score and/or expulsion from the laboratory.

Eating, drinking, and smoking are prohibited in the lab at all times. Chewing gum is also prohibited.

Long hair must be held in place to the back of your head. You are responsible for bringing the bands or clips to hold back your hair. Only full-length pants or skirts are allowed in the labs. If you do not comply with the attire rules, you will be asked to leave the lab to get appropriate clothing. If you do not make it back to complete the lab, you will receive a zero for that particular lab.

All personal belongings must be placed in the back of the room and any food/drink should be inside a backpack.

Further details on appropriate lab attire and other safety regulations are provided in the lab manual and will be explained during the first class meeting.

Personal Electronic Devices: Cell phones, pagers and other personal electronic devices are NOT permitted in lab. If you leave them out in sight or continue to use them after being told not to, you will be asked to leave the lab and you will receive a zero for the missed lab.

Questions: If you have any questions regarding the laboratory course or specific experiments, e-mail your TA or go to the help desk in room 406 HELD. General questions regarding lost and found or other non-technical issues can be sent to chemfyp@chem.tamu.edu

Electronic Communications: All electronic communications with your TA, IA, the FYP office, and the Laboratory Coordinator must be conducted from a tanu email account. All emails should include the student’s first and last name, UIN, and the course and section number. Students are responsible for checking their tanu email on a regular basis to receive messages regarding the laboratory course.

eCampus: Your grades will be posted on the course eCampus page, accessible via: eCampus.tamu.edu. All supplemental information and/or handouts for experiments not included in your lab manual will be posted on eCampus. Furthermore, all prelab quizzes will be conducted as assessments on eCampus. For more information regarding these assessments, see the prelab quizzes section under Laboratory Assignments.

Absences and Make-up Labs: All students with absences due to University-approved excuses as defined by Student Rule 7 (see http://student-rules.tamu.edu/rule07.htm), will be allowed to make-up missed laboratory work provided the requirements outlined in the student rules are met. In cases where advanced notice of an approved absence cannot be given, students must contact the FYP office or the lab coordinator by the end of the second working day after the end of the absence. All excused absences from lab and make up lab requests must be reported to and processed by the First Year Program office in 412 HELD. Your TA does not have the authority to approve a request for a make-up lab or to schedule a make-up experiment. An absence for a non-acute medical service (such as a doctor’s appointment) does not constitute an excused absence. Missing lab for not having goggles or other required safety attire is not an excused absence. We are under no obligation to allow make-up opportunities for unexcused absences.

Please note: The FYP office in HELD 412 is open from 7:45-4:45 Monday-Friday.
Assignment Due Dates and Late Policy: All assignments are due at the beginning of each lab meeting. A three point deduction per day beginning at the start of class will be applied to any late assignments. Assignments submitted more than one week after the due date will not be graded.
Switching Sections: Once you have registered for a laboratory section, you are NOT at any time allowed to switch sections later in the semester unless we have proof that there is a conflict with an exam or you need special accommodations. You have to notify the First Year Program office in 412 HELD before the conflict occurs so that we can make arrangements. **Conflicts between common exam times and regularly scheduled lab courses must be accommodated by the course administering the exam.**

Punctuality: Arrive to lab on time. Lab sessions begin with important information concerning the procedures to be followed and safety considerations. If you arrive significantly late and if the TA perceives that time to be very late, he/she may decide not to let you in for that lab session as you will not be able to properly follow the procedures and the safety instructions discussed while doing your lab work.

Academic Integrity: The Aggie honor code states that “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 processes of the Honor System. For additional information visit: [http://aggiehonors.tamu.edu/](http://aggiehonors.tamu.edu/)

Each student has to turn in his or her own pre-lab, post-lab and data sheets. **Even though laboratory data is collected in pairs all submitted work must be completed individually.** Copying of the prelab, post-lab and data sheets instead of turning in your original work, written using your own words, is considered cheating. Changing experimental data after leaving lab, making up or borrowing data that you did not obtain in class is also a violation of the honor code. All students found to be in violation of the honor code will be given a grade of 0 for the assignment and a report of the violation will be filed with the Aggie Honor System Office. If any two reports are alike in their entirety or in part, it is considered cheating. Turning in a post-lab and data sheets for a lab you did not complete is also considered cheating.

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 you have a disability requiring an accommodation, please contact Disability Services, Cain Hall, Room B-118 or call 845-1637. For additional information, visit [http://disability.tamu.edu/](http://disability.tamu.edu/).

Students wishing to receive accommodations for disabilities for CHEM 112 must submit the appropriate paperwork to the FYP office in HELD 412. We are not responsible for providing any accommodations until the paperwork has been submitted to the office.

Laboratory Assignments: Assignments associated with 10 laboratory experiments comprise the majority of the Chemistry 112 course grade. The points for each experiment are divided into as many as four categories, including: quizzes, performance and safety, data reduction and analysis and technical abstract. Other assignments included in Chemistry 112 are one final exam, and a project report. A brief description of each of the course components is given below. A schedule of experiments and a point breakdown for all assignments is listed in the schedule found on the last page of this syllabus.

1. **Prelab Quizzes:** A prelab quiz will be administered for each experiment, or portion of an experiment for multi-week projects, in the course. All of the quizzes for the course are electronic, and will be administered on the eCampus page for this course. (Available through: [ecampus.tamu.edu](http://ecampus.tamu.edu)) The prelab quiz for each experiment will be due **prior to the beginning of the class meeting** in which the experiment is scheduled to be performed. Although use of the laboratory manual and other printed or electronic resources cannot be restricted you are required to complete the quizzes individually. Students should
also be aware that successful completion of the quizzes will require adequate preparation. The quizzes have a strict 20 minute time limit; there is no way to stop the time or reset the quiz once you start and quizzes will automatically submit at the end of this 20 minute time period. All prelab quizzes for the next week will be made available after 7:00 PM the day your lab section meets. Furthermore, as this is graded course work, all rules and policies regarding the Aggie Honor Code apply to this assessment. Answer keys to the quizzes will be released on Friday afternoons the week the quiz is due.

The prelab quizzes are designed to test a student’s preparedness for the upcoming experiment and their understanding of basic chemical concepts relevant to each experiment. Quiz questions are derived from the reading materials found in the lab manual and may cover but are not limited to the following topics: basic calculations, experimental aim; ecological/environmental issues; analytical techniques; basic chemical concepts; experimental procedure; data manipulation, and equipment and reagents. A comprehensive reading of the lab materials should sufficiently prepare students to answer quiz questions. At least one general safety question will be included in each quiz.

There will also be one quiz covering significant figures. This quiz, as all other prelab quizzes, will be accessed through eCampus. This quiz will be due before the start of lab the week of February 2. During calculation of final grades, the lowest quiz grade will be dropped.

2. Performance and Safety: The safety and performance grade includes adhering to safety guidelines (goggles and attire), maintaining a clean workspace, and being organized and prepared for the day’s activities. Safety violations will result in lost points and can lead to dismissal from the laboratory. The performance form asks whether each student a) wore goggles throughout the entire exercise; b) was appropriately dressed; c) maintained a clean environment; d) was prepared; and e) followed directions. **Each violation costs the student 3 points (making negative scores possible). The TAs must strictly follow the rules and are not allowed to exercise discretion in any of these criteria.** If the TA is found to be failing these issues during inspections, the TA can lose their job. Students will be allowed to borrow goggles from the stockroom (room 402 HELD), but it will cost 5 points on the safety and performance grade for that experiment. **Students must bring their TAMU ID to the stockroom to be able to check out goggles.** Goggles are the only component of safety attire that can be borrowed from the stockroom.

3. Data Reduction and Analysis: The laboratory manual provides a series of directions, calculations and questions after each experiment. These exercises are designed to guide students through the analysis of their experimental data. The data reduction and analysis assignment is due at the beginning of the following lab period. All calculations and questions will be completed on a worksheet found in the lab manual. Any plots or data tables should be completed using an electronic software package such as Microsoft Excel. Paper copies of all tables and plots should be attached to the data analysis and reduction worksheet. A hand-written sample calculation must accompany any calculations performed with electronic spreadsheets.

4. Technical Abstract: Most scientific findings are communicated through scientific research articles published in scientific journals. An abbreviated form of a research article, a technical abstract, will be written for one experiment in Chemistry 112. The format of this 3 page report is described in the lab manual. Specific guidelines for this assignment are provided on eCampus. Technical abstracts are due at the beginning of the following lab period.

5. Exams: One 60 minute multiple-choice final exam is given in Chemistry 112. The exam may include multiple-choice, true/false and free-response questions. This exam will be administered in lab during your regular lab time the week of April 27.
6. **Project Report**: A full report must be submitted for the research project. The report must be typed and should be approximately 3-5 pages in length. Specific guidelines will be provided on eCampus.

**There are no opportunities to earn “extra credit” in CHEM 112.**

**Determination of Final Grades**: Student scores from the assignments described above will be summed and grades will be determined using grade dividing lines (cutoffs) that will vary to some extent from section to section. The grade cutoffs will be determined after consultation between your Teaching Assistant and the Laboratory Coordinator. In each laboratory section then, grading will be ‘on the curve’, and while ‘the curves’ will be similar in different sections, they will not be identical. Overall section grade averages will be allowed to vary somewhat since every group of students is different, but the Laboratory Coordinator’s policy will attempt to compensate as much as possible for differences in the grading habits of TAs. Grade cutoffs are not determined by any adherence to a 90/80/70/60 rule – students need to be aware that such a rule is not applied. In many cases, the cutoffs will be lower than these numbers, but it is also possible that they will be higher than these numbers. Please refrain from contacting your TA, IA, the FYP office or the lab coordinator with specific questions regarding the final curve in this course; these questions cannot and WILL NOT be answered.

Final grade assignments will be not be released to students by the TAs or the FYP office. Students will learn their final grades in the course after they are released by the University.

**Disclaimer**: Any communications or handouts from your IA, the FYP office or Lab Coordinator take precedence over the contents of this syllabus.
### Schedule for Chemistry 112 Spring 2015

<table>
<thead>
<tr>
<th>Week of</th>
<th>Assignment</th>
<th>*Last Make up Lab</th>
<th>Total Points Possible</th>
<th>Quiz</th>
<th>Safety and Performance</th>
<th>Data Reduction and Analysis</th>
<th>Technical Abstract</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/19</td>
<td>Safety*</td>
<td>***</td>
<td>20</td>
<td></td>
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<tr>
<td>1/26</td>
<td>Exp. 6: Enthalpy Change for an Acid-Base Reaction*</td>
<td>2/5</td>
<td>50</td>
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<tr>
<td>2/2</td>
<td>Exp. 10: Colligative Properties</td>
<td>2/12</td>
<td>70</td>
<td></td>
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<tr>
<td>2/2</td>
<td>Significant Figures Quiz</td>
<td></td>
<td>20</td>
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<tr>
<td>2/9</td>
<td>Exp. 7: Molar Mass Determination</td>
<td>2/19</td>
<td>70</td>
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<tr>
<td>2/16</td>
<td>Exp. 9: Precipitation Titrations</td>
<td>2/26</td>
<td>70</td>
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<tr>
<td>2/23</td>
<td>Exp. 12: Kinetics II (Dry Lab)</td>
<td>3/5</td>
<td>70</td>
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<td>(50)</td>
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<tr>
<td>3/2</td>
<td>Exp. 19: Chromatography</td>
<td>3/12</td>
<td>70</td>
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<tr>
<td>3/9</td>
<td>Exp. 8: Spectrophotometry</td>
<td>3/26</td>
<td>70</td>
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<tr>
<td>3/23</td>
<td>Exp. 15: Buffers</td>
<td>4/9</td>
<td>70</td>
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<tr>
<td>4/6</td>
<td>Research Project, Week 1</td>
<td>4/16</td>
<td>30</td>
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<td>4/13</td>
<td>Research Project, Week 2</td>
<td>4/23</td>
<td>30</td>
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<tr>
<td>4/20</td>
<td>Exp. 14: Determination of Equilibrium Constant</td>
<td>4/27</td>
<td>70</td>
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<tr>
<td>4/20</td>
<td>Project Report</td>
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<td>70</td>
<td></td>
<td>Due at the start of lab this week.</td>
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<tr>
<td>4/27</td>
<td>Final Lab Exam</td>
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<td>150</td>
<td></td>
<td>During your regular lab time</td>
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<td>Total</td>
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<td>910</td>
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</tbody>
</table>

* No classes Monday, 1/19. Monday labs, sections 501-524, will do the safety orientation on 1/26 immediately followed by Experiment 6.

** Students must report to the FYP office in HELD 412 within two days after the end of an absence to request a makeup lab. This lab is at 6 PM on the date indicated; requests may not be accepted after 3:00 pm the day of the lab.

*** Students who miss the safety orientation must schedule and complete a makeup orientation BEFORE their next lab meeting.
Recertification

Language, Philosophy and Culture
Texas A&M University

Core Curriculum Course Recertification and Assessment

Cover Sheet

1. Course prefix and number: Geog 202
2. Complete course title: Geography of the Global Village
3. This request is submitted by (department name): Geography
4. Person submitting this information (name): Peter J. Hugill
5. E-mail: pjhugill@tamu.edu
6. Faculty member from whom class sets were collected (name): Peter J. Hugill
7. E-mail: pjhugill@tamu.edu

8. Indicate the Foundational Component Area this course is in:

☐ Communication  ☐ Creative Arts
☐ Mathematics    ☐ American History
☐ Life and Physical Sciences ☐ Government/Political Science
☐ Language, Philosophy and Culture ☐ Social and Behavioral Science

9. Indicate the semesters this course has been taught and the enrollment (including all sections) each semester taught:

☐ Fall 2014  1541  ☐ Fall 2015  1401
☐ Spring 2015  651  ☐ Spring 2016
☐ Summer 2015  130  ☐ Summer 2016

10. Attach the course syllabus

11. Submitted by:

Peter J Hugill

Date: 4 December 2015

Approval:

David Cairns

Date: 4 December 2015

12. Department Head

Date

13. To submit, follow directions on Instructions for the Core Curriculum Recertification and Assessment Cover Sheet.

Student work from fall 2014 submitted in Pilot Program
14. Follow instructions on the Core Curriculum Recertification Foundational Component Area Form for instructions on the submission of student artifacts.
Lecture: MWF 10.20-11.10 pm, ILSB 1105

Instructor: Dr. Peter J. Hugill
Office: 803C O&M, ph. 845-7106
Office Hours: MWF, 9 to 10 am, or by appointment.

Course Text:

If you do not already have one, an Atlas of the World will be useful. Pearson packages *Goode’s Atlas* with the text at an additional cost to you over the text of c. $12. *Goode’s* retails for $50 so it’s a good deal, you will have it on your bookshelf long after you have graduated, and you won’t mistake Czechoslovakia for Chechnya as so many people did on-line after the appalling events in Boston in Spring 2013. You can also pick up an atlas second hand from suppliers such as Amazon—you don’t need the most recent edition, btw.

You have several options available online or in the University bookstore to acquire the required text for your GEOG 202 course. We are avoiding the hard back editions of the text since they are expensive and even though you can sell the hard backs back the loose leaf text saves you money overall. If you don’t need a paper copy and an atlas then the etext by itself is a GREAT deal. Please note that I do NOT use MasteringGeography as a homework system, but it allows you to access the etext and an extensive study area at low cost. They add value even tho I do not directly use them in class. You can access the MasteringGeography material via ecampus—the link will take you to the Pearson site to buy the etext or you can use the access code that comes with the Loose Leaf version if you have bought that from the bookstore.

- MasteringGeography- online purchase w/ etext
- No ISBN- purchase from [www.masteringgeography.com](http://www.masteringgeography.com)

- Loose Leaf text + MasteringGeography w/ etext

- Loose Leaf text + MasteringGeography w/ etext + Goode’s World Atlas

Required Materials:
Three 8.5” x 11” scantrons (TAMU form # 0-101607) for exams. If you fail to bring a scantron to an exam it’s your problem, though no doubt some entrepreneurial fellow student will sell you one!

Course Description:
This course identifies the major problems pertaining to poverty, hunger, overpopulation, relations between nations and races, violence, use of resources, and environmental destruction within the major geographic and cultural regions of the world.

The course deals with the issues of the diverse cultural origins of and conflicts between the world’s major inhabited regions and the variable impact on those regions of change: economic, social, environmental, and geopolitical. Particular attention is paid to problem regions and cultures.
Within the overall structure of the course into the major geographical regions, several systematic themes are pursued: the issue of environmental geography, resource endowment, and depletion; the issue of population and its specific settlement pattern within a given regional context; the issue of cultural coherence and diversity in the face of increasing globalization; the issue of the global geopolitical frameworks within which a given region operates; and the issue of economic and social development.

**Learning Outcomes**

Students will be able to explain, analyze, and evaluate the following for the period of their lifetimes:

1. The relationship between religious belief, language, and cultural values
2. The relationship between technology and geopolitics
3. The relationship between demographic change and geopolitics
4. The relationship between resource depletion, especially water and hydrocarbons, and geopolitics
5. The likely impact of global climate change and global warming on human societies

**Requirements:**

This is an entry level University course that requires careful attention to the powerpoint slides, committed attendance in class, and diligent reading and study of the course text. My intent is to migrate the powerpoint slides to ecampus. As of now find them at http://geography.tamu.edu/course/GEOG202-504/Fall12/630

**Evaluation:**

<table>
<thead>
<tr>
<th>Exams</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
<td>30</td>
</tr>
<tr>
<td>Core Exercise</td>
<td>30</td>
</tr>
<tr>
<td>Exam 1</td>
<td>70</td>
</tr>
<tr>
<td>Exam 2</td>
<td>70</td>
</tr>
<tr>
<td>Final</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
</tr>
</tbody>
</table>

Your grade will be based on attendance (1 point each for 30 class sessions), the Core Exercise, and three exams. The second and third of these I describe as cumulative because Chapters 1 and 2 inform ALL the regional chapters. I reserve the right to curve grades. The likelihood is that there will be an upward curve. The **Core Exercise is required. If you fail to submit the Core Exercise by the deadline I will DEDUCT 30 points from your grade.**
The Core Exercise

In courses in the Foundational Component Area of Language, Philosophy, and Culture, which is the part of the Core where Geography 202 is located, we are required by the State’s Higher Education Coordinating Board to measure:

(a) Communication Skills (includes effective development, interpretation and expression of ideas through written, oral, or visual communication, or a mix of these). In 202 this means:
   (i) Written communication—
   (ii) Visual communication—the development and expression of ideas using visual images (maps, graphs, photographs, illustrations etc.). It involves working with many different technologies & mixing images, texts, & data. Visual communication abilities develop through iterative experiences across the curriculum.
(b) Critical Thinking (includes creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information)
(c) Social responsibility (includes intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in communities that range in scale from the local to the global—local, regional, national, global)
(d) Personal Responsibility (includes the ability to connect choices, actions, and consequences to ethical decision-making).

To meet this requirement you must work up a powerpoint presentation and deliver it to me via ecampus. Your presentation must focus on TWO maps (the visual part of the requirement). The maps must be representations of at least ONE of the four topics below (the main course topics—these interact, so they are not necessarily mutually exclusive):

- Global Shifts in Demographics
- Global Climate Change
- Global Resource Supplies (especially energy and water)
- Global Geopolitics

You must write several powerpoint text slides (three to four for each map) to allow me to evaluate your critical thinking, social, and personal responsibility (see above for definitions). You may make or download maps. Your slides must be footnoted and your last slide should contain the appropriate references. You may NOT use maps from either my powerpoint slides for the course or any illustrations from the text. When you use web resources be cautious about where they come from. Part of “critical thinking” is evaluation of how reliable a source of information is likely to be.

To go about your assignment ask yourself the following questions. Please note that there are no “right” or “wrong” answers here.

1. How do consumption patterns in wealthy versus poor countries impact such things as demographics, global climate change, competition for resources, and geopolitics at an international scale? This is partly “Critical Thinking” and partly “Social Responsibility” as the State Coordinating Board defines it.
2. In any debate over demographic behaviors, climate change policies, resource utilization, or geopolitical conflict there are multiple “sides.” Identify at least some of the most important of these and tell us where you stand on this and why? This is partly “Critical Thinking” and partly “Personal Responsibility” as the Co-Board defines it.
Course Policies
Sorry about the various bits of legalese they say we must put in these sorts of documents, but that’s University lawyers for you!

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 you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities in Room B118 of Cain Hall, or call 845-1637.

Absences:
This class will follow strictly the University’s policy for excused absences. Make-up exams will be all essay in nature. For more information, please see Section 7 of the student rules:
http://student-rules.tamu.edu

Aggie Honor Code:
The Aggie honor code states that “An Aggie does not lie, cheat or steal, or tolerate those who do.” Plagiarism is lying (by pretending the work of others is work you have done, even if you pay some cheater to do it for you) and stealing (when it is the work of others that you fail to acknowledge). You will be required to sign on each exam the statement that “On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work.” See
http://www.tamu.edu/aggiehonor

Copyright and Plagiarism Policy:
All materials used in this class are copyrighted. These materials include but are not limited to syllabi, quizzes, exams, lab problems, in-class materials, review sheets, and additional problem sets. Because these materials are copyrighted, you do not have the right to copy the handouts, unless permission is expressly granted. You may record my lectures for personal use only.

Grading:
A 90-100%
B 80-89%
C 70-79%
D 60-69%
F under 60%

Communication:
Feel free to talk to me before or after class, if only to make an appointment, though I can usually answer most questions then and there. I try to arrive a bit early to set up and I’m happy to hang around after class, at least until the next class shows up! If you need to make an appointment, by all means e-mail me, but please note that I do not answer e-mails that come from non-University accounts, nor questions related to course content or grades. That’s what office hours are for.
**Key Dates:**
By the date indicated, you should have read and studied the textual material through the section listed. This will make understanding the material presented in each class easier for you.

<table>
<thead>
<tr>
<th>Class Date</th>
<th>Reading, Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>W 1/21</td>
<td>CH 1, Globalization and Diversity.</td>
</tr>
<tr>
<td>F 1/23</td>
<td>CH 1, Globalization and Diversity.</td>
</tr>
<tr>
<td>M 1/26</td>
<td>CH 1, Globalization and Diversity.</td>
</tr>
<tr>
<td>M 2/2</td>
<td>CH 3, North America: environmental geography, population [Groundhog Day].</td>
</tr>
<tr>
<td>W 2/4</td>
<td>CH 3, North America: culture; geopolitics.</td>
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<tr>
<td>F 2/6</td>
<td>CH 3, North America: economic &amp; social development.</td>
</tr>
<tr>
<td>M 2/9</td>
<td>CH 4, Latin America: environmental geography, population.</td>
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<tr>
<td>W 2/11</td>
<td>CH 4, Latin America: culture; geopolitics.</td>
</tr>
<tr>
<td>F 2/13</td>
<td>CH 4, Latin America: economic &amp; social development.</td>
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<tr>
<td>M 2/16</td>
<td>EXAM 1 (70 points) [Presidents’ Day].</td>
</tr>
<tr>
<td>W 2/18</td>
<td>CH 5, The Caribbean: environmental geography, population, culture [Ash Wednesday].</td>
</tr>
<tr>
<td>F 2/20</td>
<td>CH 5, The Caribbean: geopolitics, economic &amp; social development.</td>
</tr>
<tr>
<td>M 2/23</td>
<td>CH 6, Sub-Saharan Africa: environmental geography, population, culture [Orthodox Lent starts].</td>
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<tr>
<td>W 2/25</td>
<td>CH 6, Sub-Saharan Africa: geopolitics, economic &amp; social development</td>
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<tr>
<td>F 2/27</td>
<td>NO CLASS</td>
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<tr>
<td>M 3/2</td>
<td>CH 7, SW Asia: environmental geography, population.</td>
</tr>
<tr>
<td>W 3/4</td>
<td>CH 7, SW Asia: culture, geopolitics.</td>
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<tr>
<td>F 3/6</td>
<td>CH 7, SW Asia: economic &amp; social development.</td>
</tr>
<tr>
<td>M 3/9</td>
<td>CH 8, Europe: environmental geography, population.</td>
</tr>
<tr>
<td>M 3/11—F 3/20</td>
<td>NO CLASSES/SPRING BREAK</td>
</tr>
<tr>
<td>M 3/23</td>
<td>CH 8, Europe: culture, geopolitics.</td>
</tr>
<tr>
<td>W 3/25</td>
<td>CH 8, Europe: economic &amp; social development.</td>
</tr>
<tr>
<td>F 3/27</td>
<td>CH 9, Russia: environmental geography, population, culture.</td>
</tr>
<tr>
<td>M 3/30</td>
<td>CH 9, Russia: culture, geopolitics.</td>
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<tr>
<td>W 4/1</td>
<td>CH 9, Russia: economic &amp; social development [April Fool’s Day].</td>
</tr>
<tr>
<td>F 4/3</td>
<td>NO CLASS (Good Friday/Passover/Reading Day)</td>
</tr>
<tr>
<td>M 4/6</td>
<td>EXAM 2 (70 points)</td>
</tr>
<tr>
<td>W 4/8</td>
<td>CH 10, Central Asia: environmental geography, population, culture.</td>
</tr>
<tr>
<td>F 4/10</td>
<td>CH 10, Central Asia: geopolitics, economic &amp; social development.</td>
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<tr>
<td>M 4/13</td>
<td>CH 11, E. Asia: environmental geography, population.</td>
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<tr>
<td>W 4/15</td>
<td>CH 11, E. Asia: culture, geopolitics.</td>
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<tr>
<td>F 4/17</td>
<td>CH 11, E. Asia: economic &amp; social development.</td>
</tr>
<tr>
<td>M 4/20</td>
<td>(Q DROP) CH 12, S. Asia: environmental geography, population.</td>
</tr>
<tr>
<td>W 4/22</td>
<td>CH 12, S. Asia: culture, geopolitics.</td>
</tr>
<tr>
<td>F 4/24</td>
<td>CH 12, S. Asia: economic &amp; social development.</td>
</tr>
<tr>
<td>M 4/27</td>
<td>CH 13, Southeast Asia: environmental geography, population.</td>
</tr>
<tr>
<td>W 4/29</td>
<td>CH 13, Southeast Asia: culture, geopolitics.</td>
</tr>
<tr>
<td>F 5/1</td>
<td>Core Exercise due. CH 13, Southeast Asia: economic &amp; social development [Labor Day].</td>
</tr>
<tr>
<td>M 5/4</td>
<td>CH 14, Oceania: environmental geography, population, culture.</td>
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<tr>
<td>T 5/5</td>
<td>(Redefined Day) CH 14, Oceania: geopolitics, economic &amp; social development [Battle of Puebla Day].</td>
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<tr>
<td>M 5/11</td>
<td>8 to 10 am FINAL EXAM (100 points)</td>
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