Chapter XVII: CAPSTONE EXPERIENCES

Who takes it?
All seniors take a capstone course in their major.

When is it administered?
During the senior year.

What office administers it?
The faculty of the discipline.

Who originates the capstone course and review?
The faculty of the discipline.

When are results typically available?
The fall following the year in which the capstone courses are given.

From whom are the results available?
The faculty of the discipline or the division office.

What type of information is sought?
Each discipline establishes specific outcomes for that discipline.

Are the results available by division or discipline?
Yes—by discipline only.

Are the results comparable to data of other universities?
No.

Over the last two decades, capstone courses have seen improvement. Faculty have developed many approaches to capstones and have discovered numerous benefits beyond the initial expectations. Capstone courses help students to integrate the subfields, skills, and perspectives of the major. They prompt faculty discussion, which contributes to increased coherence of a major's course of study. The courses create opportunities for multiple assessments to be made of the major and liberal arts and sciences objectives by the faculty themselves. It is the faculty's direct analysis of the students' cumulative learning that makes this method of assessment so beneficial.

GOALS FOR STUDENT LEARNING

Truman seeks that its students graduate with in-depth knowledge in the major comparable to knowledge received from the best universities in the country and the world. Thus, the university emphasizes that a student's learning should be cumulative and should cover the breadth of the discipline. The graduating student is also expected to demonstrate the ability to integrate knowledge and to make interdisciplinary connections.

Skills that have been identified as critical objectives for the university include the ability to write various types of papers, to speak comfortably both in formal and impromptu presentations, to work collaboratively with fellow students, and to think critically. Assessment of the third goal, attitudes, has included varied levels of attention, but many of the majors have developed several of the following four foci:

1. Does the student demonstrate openness to more than one position and make fact/value distinctions?

2. Does the student possess positive self-esteem and practice self-evaluation?

3. What are the students' attitudes toward the university and the major?

4. Does the student demonstrate ethical and social responsibility?

SELECTED ASSIGNMENTS FROM CAPSTONE COURSES:
KNOWLEDGE, SKILLS AND ATTITUDES

Strategies for senior experiences to demonstrate and build on student knowledge of the discipline range from presenting an article review to writing a formal thesis or paper, or from designing a research project to sitting for a locally-developed comprehensive exam. Independent of the capstone course, the university requires each graduating student to sit for a nationally standardized exam. Furthermore, interdisciplinary connections are encouraged through such mechanisms as selected case studies, required interdisciplinary portfolio entries, and exit interview questions that ask the students to identify connections between their major and the LSP. The university's portfolio assessment of the liberal arts and sciences is implemented through capstone courses. Faculty in the major are asked to collect the portfolio and are encouraged to add specific portfolio requests pertaining to objectives in the major.

To assess student skills such as communicating and collaborating, faculty might ask students to formally present their research to the class, to argue and defend an issue position, to sit for an oral examination, or to work in groups to solve a problem and/or conduct a research project. Many of the capstone courses also attempt to consciously assess various levels of critical thinking through the ability to apply concepts and theories of the discipline to new situations, and to analyze, synthesize, and evaluate. Other disciplines focus more generally on problem-solving ability. Case studies, literature reviews,

argumentation papers, audience analysis, canon discussions, and student self-evaluation each prove to be popular assignments that combine knowledge objectives with skills assessment.

Objectives regarding attitudes are more difficult to specify and assess than knowledge and skills, but faculty in many majors have developed a consensus on several objectives and have developed approaches to assess them. Case studies can present students with ethical dilemmas to resolve, and role-playing can be an effective means for demonstrating multiple perspectives to an issue. Students may be asked to argue for a position other than the one they hold. Many of the capstone courses provide multiple opportunities for students to self-assess. Students might be asked to identify their strengths and weaknesses during an exit interview or to evaluate the curriculum. Every student is asked to evaluate the university and the major in the university-wide Graduating Student Survey. Faculty in the major then receive the data on their majors as well as university averages during the summer Master Plan and Assessment Workshop.

CAPSTONE BENEFITS

Benefits of the capstone courses are varied, but an examination of the benefits of a specific capstone can best demonstrate some of the potential contributions capstone courses can make. Team teaching the capstone course brings opportunities several times a week for colleagues to reflect on and discuss student learning in the major. Inevitably, such discussions include references to the curriculum, specific assignments, and teaching pedagogy. Faculty have the opportunity to learn teaching strategies and discipline subfields from each other. This is a particularly good opportunity to mentor new faculty about the importance of discipline objectives, high expectations for students, and frequent faculty-student interaction. Through collegial discussions, program objectives are shared, cohesiveness increases, and improvements are planned.

VARIOUS MODELS OF CAPSTONE EXPERIENCES

Since the university granted faculty in each discipline the autonomy to interpret the capstone requirement for their major programs, a wide variety of models has evolved. Several models are presented in the following pages showing the knowledge, skills, attitudes paradigm. These various models provide a more complete description of capstone courses at Truman State University. One discipline from each division is included below. Discipline reports rotate in this *Almanac* on a yearly basis.

DISCIPLINE: Business Administration

COURSE TITLE: BSAD 460 Strategic Management

CREDIT HOURS: 3

TEACHING METHODS AND LEARNING EXPERIENCES: Strategic management is taught by a single faculty member. Three different professors teach sections of this course. All sections are writing enhanced and use a range of teaching methods including lecture, small and large group discussions, case study analysis and simulations.

Students are heavily involved in collaborative projects as they study strategic issues. All of the courses require a significant amount of writing, peer editing and evaluation and teamwork. Most of the sections require group presentations.

COURSE OBJECTIVES:
Students are expected to:
1. Demonstrate an understanding of the integration of the functional areas of business and the issues and concepts used in strategic management.
2. Demonstrate an understanding of the basics of strategic thinking in settings involving rivalry.
3. Demonstrate an ability to use writing as a way of learning, as well as a way of communicating what was learned within the business environment.

OUTCOMES:
Knowledge: Students are expected to learn about the current issues facing business organizations and to understand various strategic theories, models and frameworks that can be used to analyze business situations. Students must synthesize and apply previous coursework in accounting, finance, marketing and management through assignments such as case study analyses and simulations.

Skills: The course emphasizes three major skill areas: written communication, oral presentation and teamwork skills. The course incorporates the learning outcomes of the writing enhanced program. Students become adept in business case writing skills. They write several individual case analyses then work on a team case assignment that involves researching and analyzing a current company's business situation and effectiveness. Teams identify a current strategic issue or problem facing the organization, analyze multiple alternative solutions, and develop an argument for the solution they recommend. Most of the sections require an oral presentation of the analysis. The course serves as a division collection point for the written communication rubric. The teamwork rubric is often used to allow team members to evaluate the other group members' teamwork skills. Students submit their University and Business Portfolio entries as part of the course requirements.

Attitudes: Through participation in class discussion and selected case studies, students will develop an awareness of ethical situations in business organizations and the concept of corporate social responsibility. They will discuss proactive strategies that management can use to model appropriate behavior, to develop ethical guidelines for its employees, and to determine how the organization's approach to corporate social responsibility is built into its strategic position, policies and culture. Students will develop self confidence by learning how to apply course models in case studies and current business settings and how to state and justify their positions effectively.

DISCIPLINE: Music

COURSE TITLE: MUSI 479 – Senior Recital (Capstone for the BA General Concentration degree)

CREDIT HOURS: 1

METHODS OF CONDUCTING THE SEMINAR: Students meet for a weekly applied lesson on their chosen instrument to prepare repertoire for this performance.

KNOWLEDGE:

- DISCIPLINE CONTENT & INTERDISCIPLINARY CONNECTIONS
  -Preliminary Recital Examination before a faculty committee
  -Public Performance of approximately 30 minutes of music

SKILLS:

- WRITING
  -Program notes/translations

- CRITICAL THINKING: Comprehension and Application, Analysis, Synthesis, Evaluation
  -Preliminary Examination
  -Public Performance

ATTITUDES:

- OPENESS TO MORE THAN ONE POSITION AND RECOGNITION OF FACT/VALUE
  DISTINCTION
  -Preliminary Examination
  -Public Performance

TYPES OF EXPERIENCES:

Students prepare a program of repertoire for a 30 minute public performance under the guidance of an applied music faculty mentor. This performance entails the preparation of repertoire reflecting a variety of musical styles (as set forth in the Music Student Handbook) most often in collaboration with other performers.

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DISCIPLINE: Music

COURSE TITLE: MUSI 480 – Senior Recital (Capstone for the BM degree)

CREDIT HOURS: 1

METHODS OF CONDUCTING THE SEMINAR: Students meet for a weekly applied lesson on their chosen instrument to prepare repertoire for this performance.

KNOWLEDGE:

- DISCIPLINE CONTENT & INTERDISCIPLINARY CONNECTIONS
  -Preliminary Recital Examination before a faculty committee
  -Public Performance of approximately 50 minutes of music

SKILLS:

- WRITING
  -Program notes/translations

- CRITICAL THINKING: Comprehension and Application, Analysis, Synthesis, Evaluation
  -Preliminary Examination
  -Public Performance

ATTITUDES:

- OPENESS TO MORE THAN ONE POSITION AND RECOGNITION OF FACT/VALUE DISTINCTION
  -Preliminary Examination
  -Public Performance

TYPES OF EXPERIENCES:

　　　　Students prepare a program of repertoire for a 50 minute public performance under the guidance of an applied music faculty mentor. This performance entails the preparation of repertoire reflecting a variety of musical styles (as set forth in the Music Student Handbook) most often in collaboration with other performers.

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DISCIPLINE: Music

COURSE TITLE: MUSI 483 – Capstone Experience

CREDIT HOURS: 1

METHODS OF CONDUCTING THE SEMINAR: Individual students meet on an arranged basis with a selected faculty mentor.

KNOWLEDGE:

- DISCIPLINE CONTENT & INTERDISCIPLINARY CONNECTIONS
  -Formal Paper

SKILLS:

- WRITING
  -Formal Paper

- SPEAKING – PREPARED
  -Public Presentation

- SPEAKING – EXTEMPORANEOUS
  -Question and Answer following Public Presentation

- CRITICAL THINKING: Comprehension and Application, Analysis, Synthesis, Evaluation
  -Formal Paper

ATTITUDES:

- OPENESS TO MORE THAN ONE POSITION AND RECOGNITION OF FACT/VALUE DISTINCTION
-Formal Paper

DISCIPLINE: Health Science

COURSE TITLE: HLTH 450 (Professional Issues in Health Science) and HLTH 440 (Program Planning and Implementation)

CREDIT HOURS: HLTH 450 (1 credit), HLTH 440 (3 credits)

METHODS OF CONDUCTING THE SEMINAR: Both courses are taught by individual instructors.

KNOWLEDGE:

HLTH 440 outcomes:

- Identify the assumptions on which health education is based.
- Identify and apply models commonly used in planning health promotion programs.
- Describe methods of data collection for need assessment and program evaluation.
- Explain the connection of mission statements to health program planning and evaluation.
- Write measurable objectives and specific action steps to meet project goals.
- Explain why health promotion interventions are planned using theoretical frameworks.
- Identify and apply different categories of intervention strategies.
- Discuss the processes for community organizing and community building.
- Explain the relationship between a needs assessment and a marketing program.
- Explain how program planning and evaluation information relates to CHES competencies.
- Select an appropriate evaluation design.
- Identify the different phases for the implementation of health promotion programs.

HLTH 450 outcomes and their assessment:

- To acquaint students with the process of job search and application procedures – Students must submit a job/graduate school search assignment that is graded and returned
- To have the students develop an understanding of financial responsibilities associated with being independent – Students develop a personal budget based upon an entry level salary. This budget is submitted as an Excel file, evaluated and returned.

SKILLS:

HLTH 440 outcomes:

- Identify and apply models commonly used in planning health promotion programs.
- Develop a rationale for planning and implementing a health promotion program.
- Conduct community assessment within a given population to identify available resources, services, and programs.
- Write measurable objectives and specific action steps to meet project goals.
- Identify and apply different categories of intervention strategies.
- Assess and evaluate an organization, its personnel, and resources/assets.
- Develop program/project timelines, aligned to program goals and objectives.
- Collect and analyze survey data.
- Conduct evaluation of process, impact, and outcomes.

HLTH 450 outcomes and their assessment:

- To provide students an opportunity to develop interviewing skills – Students are required to participate in at least one mock interview conducted by the University Career Center. Students are then required to submit a short narrative identifying strengths and areas of challenge regarding their interview performance.
- To provide students an opportunity to develop specific job resumes – Students are required to submit a resume in support of a specific job or graduate school. Resumes' are reviewed by Career Center and course instructor and feedback provided.
- To provide students an opportunity to develop a variety of professional cover letters – Students develop three separate cover letters in support of a specific position or graduate school. Cover letters are reviewed by course instructor and feedback provided.
- To provide students an opportunity to draft a personal statement – Students develop a personal statement in consultation with the Career Center. Statements are reviewed by course instructor and feedback provided.

ATTITUDES:

HLTH 450 outcome and its assessment:

- To allow students to offer input in to curricular changes – Students engage in a SWOT analysis and conduct a normative group process on changes to the HES curriculum. This information serves as foundation for in-depth class discussion.

Assessment of HLTH 440 Outcomes:

The Outcomes for HLTH 440 are assessed primarily through a single service learning project that is described below. This project requires a minimum of 15 contact hours for each student. Students form working groups (3-4 people), and select a project from the list below that involve health planning, implementation, and evaluation skills. The purpose of **the projec**t, project objectives, and a **summary proposal** of the project activities **must be submitted** to the instructor for approval.

a. Write a project summary proposal after meeting with your project supervisor and submit.
b. Submit weekly e-mailed group progress reports to the instructor each Friday.
c. Write goals and measurable objectives, and action steps to accomplish all of the necessary activities to be completed for your project this semester. (Use chapter 6 and class notes.)
d. Develop a timeline for each major activity and their due dates. Create a Gannt Chart for your group's tasks to be completed this semester. Include the months of January, February, March, and April. This should be detailed, but flexible. The timeline should a bar (or some sort of coding) for work completed to date, and work yet to be completed. For the midterm report, this timeline should show progress from the beginning of the semester to the midterm, and anticipated progress through the end of the semester. The final timeline should list actual dates. Indicate the current date in the appropriate spot using an arrow to mark the date on each timeline submitted.
e. Explain each group member's activities on the project in weekly reports, the midterm, and final report.
f. As evidence of each member's contribution to the project, submit a copy of all letters, e-mails, all materials developed, telephone log, all contacts/meetings with your project supervisor, and other evidence of your group's efforts (PSAs, brochures, posters, presentation outlines, etc.) for this project. Keep all documents, organize them chronologically, and identify who did what in this section of the notebook.

g. Timesheets: Each group member should download a timesheet from BlackBoard listing the date, activity, and amount of time s/he spent in quarter-hours for this project. Each student's timesheet must be verified by the signatures of other group members.
h. Problems/Barriers/Limitations: Each group member should list the problems or barriers encountered while doing this project.
i. From BlackBoard, download a copy of the rubric/grading sheet for the project, and include it with the midterm report and final project notebook on the due dates.
j. From BlackBoard, download a copy of the supervisor's evaluation sheet for the project. Provide a copy to the supervisor by midterm and request that the evaluation be mailed or e-mailed to the course instructor.
k. Submit Midterm Group Progress Notebook. Both the midterm group progress notebook and the final group project notebook should use dividers to aid in the organization of the progress reports.
l. Submit the Final Group Project Notebook
m. What to include:

Group Midterm Progress Report:	Final Group Project Notebook:
Supervisor name, address, telephone, & e-mail	Supervisor name, address, telephone, & e-mail
Description of project	Description of project
Project goals, 6-point measurable objectives, and action steps needed to complete each objective	Project goals, 6-point measurable objectives, and action steps needed to complete each objective
Summary of project activities to date	Project summary
Explanation of each group member's activities	Explanation of each group member's activities
Individual time sheets signed by each member and verified by other group members	Individual time sheets signed by each member and verified by other group members
Gantt timeline (to date)	Gantt timeline (to date)
Weekly e-mail reports and evidence of work completed to date	Weekly e-mail reports and evidence of all work completed (posters, brochures, PSAs, etc.)
Work needing to be completed	Phone log/contacts/meeting notes
Problems/Barriers/Successes to date	Problems/Barriers/Successes of project
Process evaluation	Summative project evaluation report—linked to project objectives
	Copy of final project report sent to project supervisor
	Supervisor's evaluation of project

TYPES OF EXPERIENCES:

HLTH 440 students engage in a wide array of service learning projects that facilitate the capstone experience. Examples of these projects are described below.

a. **Alcohol Screening Week (April 2-6).** Working under the supervision of Mr. Phil Jorn, USC, plan, schedule, present, and evaluate campus activities for the Alcohol Screening Week and events for Alcohol Screening Day (April 5). Specifically, target the 2 campus groups with high drinking rates, yet include all students/organizations in the intervention. Coordinate activities with BACCUS/Gamma. Create advertising/promotion for the week's events: 1) publicity & advertisement [posters, flyers, banners, master calendar/newspaper/radio/Truman Today PSAs, announcements, table tents in SUB & dining halls, etc]; 2) educational presentations to at-risk groups; 3) creation of handouts ["How to Help a Friend…"]; and 4) scheduling needed for Alcohol Screening Day [reserve tables for SUB & Violette; schedule volunteers for booths & mocktails & root beer, etc.].

*ALL HLTH 440 students will assist at the booths for Alcohol Screening Day on April 5.

b. **Health/Fitness Presentations for Students** (Feb. 1-March 1/March 19-April 16) Working under the supervision of Karen Skoch, SRC Fitness/Wellness Director, plan, schedule, present, and evaluate five 50-minute health presentations to be held in the SRC Conference Room. Dates/times for each presentation to be determined by group after consulting with Karen Skoch.

   This project includes necessary advertising to promote each of the presentations: TruView, SRC posters, SRC website, Truman Radio announcements, flyers to campus organizations & posted in residence halls, Truman Today announcement, Master Calendar online, etc. Also, participant evaluations for each presentation will be created, administered, and analyzed. Submit detailed outline, plus. all handouts and materials for each of the presentations

   Group #1: Presentation topics will be selected from:
   1) Strength Training 101
   2) Diet is a 4-Letter Word (Healthy Habits & Tips)
   3) Less Time/More Benefits
   4) Training for a Marathon
   5) One other topic developed by group/approved by Karen Skoch

   Group #2: Presentation topics will be selected from:
   1) Running 101
   2) MyPyramid Eating Guidelines
   3) Getting more out of your cardio workout/routine
   4) HEALTHY—Habits, Exercise, Attitude, Lifestyle, Time=Healthy You
   5) One other topic developed by group/approved by Karen Skoch

c. **Health/Fitness Presentations for Faculty/Staff** (Feb. 1-March 1/March 19-April 16) Working under the supervision of Karen Skoch, SRC Fitness/Wellness Director, plan, schedule, present, and evaluate at least five health presentations to be held in the SRC Conference Room and McClain Hall computer lab. Dates/times for each presentation to be determined by group after consulting with Karen Skoch.

   This project includes necessary advertising to promote each of the presentations: TruView posting, SRC posters, SRC website, Truman Radio announcements, flyers to campus organizations & posted in residence halls, Truman Today announcement, Master Calendar online, etc. Also, participant evaluations for each presentation will be created, administered, and analyzed. Submit detailed outline, plus. all handouts and materials for each of the presentations**.**

   Group #3: Presentation topics will be selected from:
   1) Diabetes Prevention
   2) Flexibility 101 or Proper Stretching Techniques
   3) Eating healthy at work
   4) Lifetime Sports Activities
   5) Other topic developed by group/approved by Karen Skoch

   Group #4: Presentation topics will be selected from:
   1) Participating in Triathlons
   2) Lowering Your Cholesterol
   3) Stress Management
   4) Strength Training 101
   5) Other topics developed by group/approved by Karen Skoch

d. **CHEERS Program.** Working under the supervision of Mr. Phil Jorn, USC, plan, schedule, present, and evaluate activities to revitalize the CHEERS program in Kirksville. This will

include, but not be limited to meeting with local bar owners about the CHEERS Program, making presentations to bar staff about the CHEERS Program, promoting the CHEERS program on campus to organizations and students, linking CHEERS to Alcohol Screening Week/Day activities, promoting safe non-drinking alternative activities, etc. This group will also need to create posters/banners,/flyers, write PSAs, promote CHEERS through the local and campus media (radio, TV, newspapers). A pre-test/ post-test survey should be conducted to compare students' knowledge of CHEERS before and after this intervention. Investigate ways to continue knowledge of the CHEERS program among students, and with high bar employee turnover. This group could submit an IRB, submit an abstract for Student Research Conference in February, analyze the pre-post-test data and present the project at the Student Research Conference on April 3.

e. **Sleep Awareness Week (March 19-23)** Working under the supervision of Dr. Brian Krylowicz, USC, plan, schedule, present, and evaluate campus activities for the Sleep Awareness Week. Coordinate and integrate activities with SPHA and Residence Halls (SAs & Hall Coordinators). Possibly seek assistance from the Psychology Dept. Develop & schedule interesting sleep awareness events on campus for each day of the week (peer presentations to classes/groups, pajama party, bed races, stress management & relaxation to promote sleep, etc). Create advertising/promotion for the week's events: 1) publicity & promotion [posters, flyers, banners, master calendar, newspaper/radio/Truman Today PSAs, announcements, table tents in SUB & dining halls, etc]; 2) educational presentations to at-risk groups; 3) create sleep fact sheets; and 4) scheduling needed for the week's activities [reserve tables for SUB & Violette; schedule volunteers for booths, etc.].

f. **University Benefits Project:** Working under the supervision of Dr. Michael Bird (Benefits Committee chair) plan, schedule, assist with, and evaluate small group health presentations to faculty and staff at their (staff, faculty, and division) meetings during January and February. Students will work with members of the Benefits Committee to present information about current faculty/staff health/wellness benefits available and upcoming planned health screening activities. Publicize these meetings (e-mail, flyers, notices, etc.) to increase potential attendance. Create promotional/advertising materials for spring blood screening for faculty & staff, and promote completion of HRA, plan & schedule HRA computer workshops and be resource personnel for 1on 1 scheduled appointments for faculty and staff during spring semester, and assist in creating the benefits survey to faculty and staff. Compile the results of focus group meetings and prepare a report for the Benefits Committee.

g. **Go Red for Women and Heart Walk:** Working under the supervision of Karen Skoch, SRC Fitness/Wellness Director, plan, schedule, present, and evaluate activities to promote Go Red for Women Day on February 2, 2007, and promote Heart Health Month activities for faculty and staff during February. Promote faculty/staff wearing red on 2/2/07. Recruit female administrators (president, deans, directors, conveners) on campus to support this project and assist in fundraising efforts among faculty and staff for Truman State University's Heart Walk on April 28, 2007. Work with Sodexho to promote heart healthy items during February. The group could also feature a faculty/staff heart attack survivor's story, and/or promote CPR during the month.. Provide all needed advertisements & media coverage to support February's activities. Work with Karen Skoch to plan the logistics of the Heart Walk on April 28 (cont'd) (registration, food, booths, activities, etc.). Create the prototype so this campaign can be replicated again next year.

h. **Campus Sun Protection Behaviors Presentations:** Develop a campus sun protection behaviors campaign, contact sunscreen companies requesting free sunscreen samples, develop a semester's campus promotion strategy for sun protection behaviors, schedule and present six 45-60-minute

"Sun Safety" workshops to university classes/campus groups/residents of campus housing before spring break. Create a campus campaign to deter indoor tanning. Develop a pre- & post-test to evaluate participant learning and analyze the participant data. Create the prototype so this campaign can be replicated again next year. Group members could submit an IRB, submit an abstract for Student Research Conference in February, and present the project at the Student Research Conference on April 3.

HLTH 450 – Students generate a variety of artifacts relevant to identifying and securing positions in the workforce or placement in graduate programs. Students become familiar with job search strategies, develop personal statements, cover letters, interview skills, and learn important issues related to personal finance.

ADDITIONAL INFORMATION:

HLTH 450 – Based on student feedback during the curriculum changes discussion, this course was changed from a "senior" seminar to a junior seminar that is split into two blocks. The first block is geared toward those students interested in going to graduate school while the second block targets those anticipating immediate entry into the workforce. This change enables students to focus on issues specific to their immediate plans and do so in a time frame that is most advantageous to their success.

DISCIPLINE: French

COURSE TITLE: French 430: French Capstone Experience

CREDIT HOURS: 2

METHODS OF CONDUCTING THE SEMINAR: The students select a faculty member and submit an initial proposal for a capstone project, a linguistic, cultural, or pedagogical strand from the major to be written and presented orally in a forum of peers and French Faculty. The students work with their professor and meet a minimum of 5 times during the semester.

KNOWLEDGE:

- deepen their knowledge of a particular area of French studies
- knowledge of cultural diversity
- deeper understanding of the French Language
- more profound perspective on French culture

SKILLS:

- research skills
- skills in synthesizing information
- drawing conclusions
- writing skills
- language skills
- demonstrate an ability to communicate these skills to others

<u>**ATTITUDES:**</u>

Students deepen their appreciation for the interconnectedness of human knowledge, their willingness to confront questions of cultural difference, and their understanding of the liberal arts. They also learn to demonstrate these attitudes and to value them.

<u>**TYPES OF EXPERIENCES:**</u>

Students may choose from the following formats accompanied by a written report. : 1) Public presentation and/or discussion; 2) a workshop involving other students, faculty, and/or other interested non-students; 3) Prepared pedagogical materials; 4) a translation; 5) other (as approved by Supervisor). The students may conduct an interdisciplinary study in consultation with a French faculty member and faculty from outside the French Program. They must take the Praxis II exam sometime during their final semester.

<u>**ADDITIONAL INFORMATION:**</u>

The French Program at Truman State University uses nationally normed exams to evaluate their seniors' abilities before exiting the university. We have used the MLA French Exam for 10 years and have found that its decontextualized approach to language no longer fit in a communicative language program.

After reviewing our students' data, we found that they reported that the test did not match with how or what they learned. Furthermore we found that the exam didn't appropriately evaluate our students' abilities for study in teacher preparation.

Changes through Assessment: Praxis II
After an intense search for an exam that would evaluate our students based on contextualized, communicative language usage, we chose the Praxis II. Praxis II is a nationally-normed exam that individuals exiting French programs take as an evaluation of their proficiency in French. Furthermore, students entering the teaching profession take Praxis as part of the teacher licensing and certification process. It is required by Missouri and many other states. A number of professional associations and organizations require these tests as one criterion for professional licensing decisions. We are exited to see the results of our seniors testing through this program.

Subject Assessments
These assessments measure general and subject-specific content areas as well as teaching skills and knowledge. They include both multiple-choice and constructed-response test items. Praxis tests are reviewed on a regular basis. During the first phase of review, ETS conducts an analysis of relevant state and association standards and of the current test content. State licensure titles and the results of relevant job analyses are also considered. Revised test questions are then produced following the standard test development methodology. National advisory committees may also be convened to review existing test specifications and to evaluate test forms for alignment with the specifications.

DISCIPLINE: Computer Science

COURSE TITLE: Capstone Experience

CREDIT HOURS: 0-15 (course enrollment not required)

CAPSTONE REQUIREMENT:

Each senior shall present to the Computer Science faculty for acceptance a project demonstrating the ability to work independently and to integrate the knowledge gained in the major. It is anticipated that most students will present a substantial software development project, which could take diverse forms. No project undertaken as part of a course taken for credit in the major will be accepted.

The Capstone experience is not tied to a specific course, however, CS 495 — Senior Computer Science Seminar (1 hour) requires that each student complete and obtain approval for a capstone proposal as part of the course.

KNOWLEDGE:

- The Capstone experience is intended to be one which integrates material from several courses across the range of computer science courses, and perhaps from other academic areas as well. Given the broad range of capstones, it is not practical to give a common body of knowledge for all capstones.
- In all cases, it is expected that the capstone be something appropriate for a computer science professional. Proposals that might be considered as technical support or user assistance are not appropriate.
- Each student is responsible for selecting a capstone experience. There are two primary avenues: internships and software projects.
- Faculty approval of the appropriateness of the experience is usually obtained before the Capstone experience, although internships are occasionally approved after the fact, when advance approval is impractical.
- Final approval follows a public presentation to faculty.

SKILLS:

- The student will use computer science skills in the capstone. Most involve programming skills. Internships generally require the student to work as part of a group, requiring oral and written communication. The presentation of the capstone requires both a formal oral presentation, usually involving presentation software such as PowerPoint®, and a written summary of the capstone experience.
- The oral presentation is attended by most computer science faculty, and the written summary is read by all faculty, but there is no formal assessment of the skills involved.

ATTITUDES:

- The student should gain confidence in his or her ability to learn new knowledge and skills, to synthesize and apply knowledge and skills, to complete a substantial project with limited supervision, and to write and present technical material. Each student should gain confidence in her or his preparation for further study or for a career as a computer science professional.

- This area is not formally assessed.

TYPES OF EXPERIENCES:

Avenues which are acceptable include:
✦ A software development project
✦ A research project
✦ An internship, which may be for credit as CS 471/CS 472.

✦ A readings class (CS 485, 2-3 hours) undertaken with a Computer Science faculty member.
✦ A project directed by a faculty member in another discipline.
✦ A project for an employer, or as a volunteer, or for a faculty member at KCOM.

- Some students find internships through the Career Fair, while others identify opportunities through personal contacts or through notices that are brought to the attention of faculty and distributed through informal channels. Many companies run ongoing internship programs; those that are not part of an established program, or that are with companies or other organizations that are not well-known to faculty, are given more careful scrutiny. The most common knowledge involved in these internships is software engineering or database systems. Recent internships have been completed with AT&T, Boeing (2), Cerner (3), The Danforth Plant Science Center, EnterSPY, IGS Technical Services, Monsanto (4), and Savvis.

- Students not doing internships usually complete a software project in an area of interest. The complexity and scope of the project must go significantly beyond the topics covered in any relevant computer science course, regardless of whether or not the student has taken that course. Specific areas of knowledge involved depend on the nature of the project. Recent projects include Gene Expression and Visualization Application, Adding Graphics to a Free Statistics Package, Anthropology System Upgrade, Animation techniques in Java2D, Fair Mutual Exclusion in Concurrent Programming, Facilities Utilization Tracking Software, Web Application for Truman ITS, Using Logical Specification to Create and Prove Correct Software, Baseball Simulation, Home Theater PC Front End, Poker Bot 3000, Online Password Vault, Robotic Localization and Mapping, Student Recreational Center Promotional Program Support System.

ADDITIONAL INFORMATION:

Capstone Project Guidelines for Computer Science
While capstones in computer science may take many different forms, most have been internships or programming projects. These guidelines are intended to give general guidance to students on expectations for these projects. Other projects are possible; students should consult with faculty regarding the expectations in those cases. Double majors are encouraged to have a capstone project that bridges the two areas.

Projects usually fall into one of several broad categories:
❖ internships in companies with established internship programs
❖ employment with a company (usually for a summer)
❖ software development projects for a faculty member or for a campus organization or office
❖ software development projects following a student's interests
❖ participation in an established research program
❖ research undertaken following a student's interests

In all cases, it is expected that the capstone be something appropriate for a computer science professional. The complexity and scope of the project must go significantly beyond the topics covered in any relevant computer science course, regardless of whether or not the student has taken that course.

A primary distinction made is the degree of supervision by the organization for the student. In companies that employ and supervise computer science professionals, standards are generally established by the organization and the student will be expected to follow those standards.

In smaller organizations, including smaller businesses and campus offices and organizations, there is often not much professional supervision of the projects. It is expected that students will follow generally accepted standards of professional computer science program development. At a minimum, this will follow one of the models for software development life cycles, and will include documentation for requirements analysis, specification, design, implementation, and integration, and the project should be deployed for the end user. Programs should be documented to facilitate maintenance by another programmer. It is expected that the student will bring expertise to the project even where the person supervising the project does not have experience in supervising computer program development. In these cases, the computer science faculty member supervising the project will consult with the student on progress of the project, and will approve the documents for each of the stages of software development.

Projects will usually involve two supervisors. A computer science faculty member will serve as a resource and consultant on the project, and will approve intermediate stages of the project. Another supervisor will come from the office or organization for which the project is being developed; that supervisor must be a non-student client or customer who submits a detailed requirements document prior to capstone pre-approval, equal in scope to the project description that we require for an internship. Projects for student clubs or organizations must interact with a faculty or staff mentor or adviser. Projects developed by an individual student following their own interests will usually have only a computer science faculty member as supervisor, and will generally require more interaction with the adviser.

The project should include the capability for the client or customer to be able to maintain and modify the operation of the system, after the student has completed the project, without editing source code.
In the case of participation in an established research program, the research must either be in a computer science-related field or have a significant computer science or software development component.

In the case of research undertaken for a student's own interest, the amount of software development will be decided on a case-by-case basis. Some amount of software development is expected, whether it results in simulation systems or end-user products, or is used to generate or collect data.

Depending on the area, some projects may require more extensive guidelines. In particular, projects that involve construction of a web page should respect the following guidelines:

- ❖ The web pages, both static and dynamic, should validate to one of the standards published by w3.org.
- ❖ There must be full consideration given to security, including
  - ➢ the system must be proof against sql- and html-injection attacks
  - ➢ any stored passwords should be encrypted or otherwise secured
  - ➢ any sensitive, non-public data should only traverse a network in encrypted form
- ❖ Any database backend that forms a significant part of the project must be subjected to a normal-form analysis; this analysis is a part of the project.
- ❖ It should be possible to add and modify text, alter images, maintain the database, reset passwords, etc., all from a secure administrative interface (via web, email, or local program) which has clear instructions and which does not require knowledge of sql or html.
- ❖ The project should include the installation of the system at the final server location. For example, if the system was developed on the student's T: drive, the project is not complete until installation at the client's server location.

For all capstones:
It is expected that students will seek approval before starting work on the capstone. All students should keep a daily log of their progress and keep copies of the significant documents in the project. Following the completion of the project, each student is expected to write to the following prompts:

- ❖ Describe in detail your capstone experience (at least one page).
- ❖ Describe the physical, social, and development environment of your project or internship.
- ❖ Characterize the extent to which you worked with other people.
- ❖ Describe the computer hardware and software platform.
- ❖ Describe the communications skills you used.
- ❖ Describe the CS courses or topics which were particularly useful.
- ❖ Describe the non-CS courses or topics which were particularly useful.
- ❖ List and briefly describe three things that you learned.
- ❖ Describe a problem you encountered and its solution.
- ❖ Indicate if there is anything you now realize that you should have known or studied before starting your capstone experience.
- ❖ Explain whether the experience turned out the way that you anticipated that it would.

ADDITIONAL NOTES:

There is an established process for capstone projects. It begins when a student presents a brief synopsis of their proposal to faculty for approval. Three faculty need to approve the project, one of whom is the supervisor. This approval is expected in advance, although internships are sometimes approved after the fact when approval in advance is not practical.

Each project is presented in a public forum. The current practice is to have several presentations on one or two days, depending on the number of presentations. Each presentation is scheduled for a 15 minute block. The presentations are attended by all available faculty and anyone else interested. The student chapter of the Association for Computing Machinery has hosted the presentation forum for several years.

Each student prepares a folder for review by the faculty. The prompts are given above. Because of the wide variety of capstones, the guidelines are somewhat general. The folder may include code, a user manual, or other material specific to the project. This folder is reviewed by all faculty, and three must approve the capstone. The daily log is ordinarily not part of the folder, but is reviewed by the supervising faculty member.

DISCIPLINE: Chemistry

COURSE TITLE: CHEM 445 *Chemistry Senior Seminar*

CREDIT HOURS: 1

COURSE DESCRIPTION: Senior Seminar coordinates the transition of the graduating chemistry major to the next goal, whether professional employment or graduate school. The seminar assists the student in preparing for senior exams, developing a résumé and interview skills, setting long-range career goals, and applying to graduate school. Senior chemistry majors meet weekly for topical reviews, portfolio workshops, employment seminars, graduate school panels, and discussions focusing on the closure of college life.

COURSE OBJECTIVES: To prepare the graduating chemistry major:

- • For entry into the American chemical process industry,
- • For admission to graduate or professional school,
- • To reflect on his or her development as a professional chemist, and

- To bring closure to college life.

COURSE ACTIVITIES:

- Group discussions on the American chemist as a professional and on professional ethics,
- A seminar on employment in the American chemical process industry,
- Participation on topical review sessions in preparation for qualifying examinations (GRE, MCAT, DAT),
- A panel on application to and expectations for graduate school in chemistry,
- Preparation of a resume,
- A term paper on the development of the student's professional identity as an American chemist,
- Preparation of the Senior Portfolio, and
- Counseling on the closure of college life.

KNOWLEDGE AND SKILLS: Senior chemistry majors develop knowledge and skills germane to:

- Employment opportunities in American chemistry,
- Graduate and professional education, and how to seek and secure admission to advanced study,
- Competitive performance on national qualifying examinations (GRE, MCAT, DAT, LSAT, GMAT),
- Personal and professional development and self-identity as an American chemist, and
- The closure of college life (preparation for the "real world" beyond college).

ATTITUDES: The graduating chemistry majors gain an understanding of and an appreciation for professional world of American chemistry:

- They identify their role in that world, either as practitioners of the profession of chemistry or as practitioners of professions allied with or grounded in chemistry (medicine, dentistry, law, business), and
- They understand the internal and external motivations needed to achieve success in the American chemical enterprise and its collateral professions.

Course Title: PSYC 466 Psychological Research

Credit Hours: 3

Methods of Conducting the Seminar: PSYC 466 is taught by individual professors in small classes (10-12 students) using extensive laboratory work (hands-on empirical research in small teams, usually pairs), frequent individual and group consultations with the professor, independent reading, discussion, and lecture.

Types of Experiences: The majority of class time is dedicated to completion of an entire research project, from hypothesis formation and literature review to data collection, analysis, interpretation, and presentation in a scientific manuscript and a symposium. Students perform all tasks relevant to the research process in psychology (e.g., obtaining ethical approval, recruiting volunteers, defending their research to peers and faculty). Although the course is taught by individual professors, other faculty members are involved in the ethical review process and many attend research presentations at the end of the semester. Additional course activities include preparation of senior portfolios, discussion of the senior test, and discussion of psychology's relevance to many areas of life.

Knowledge/Skill/Attitude Outcomes and their Assessment: The Psychology Discipline's outcome goals appear below, followed by methods of assessment in the context of PSYC 466. Considerable additional assessment occurs outside of PSYC 466, including the Major Field Achievement Test in Psychology (senior test), formal evaluation of the Liberal Arts and Sciences Portfolio, measures of research productivity (e.g., number of research presentations and publications authored or co-authored by students), and projects, discussions, and examinations in other PSYC courses. Detail on the methods and results of these assessments is available in the *Review of the Psychology Discipline: Fiscal Years 2002-2005* (Truman State University Psychology Discipline, 2006).

Knowledge
- Show familiarity with the major concepts, theoretical perspectives, empirical findings, and historical trends in psychology
  How Assessed: Examinations and other assignments
- Understand basic research methods in psychology, including research design, data analysis, and interpretation
  How Assessed: Semester-long research project
- Develop insight into behavior and mental processes
  How Assessed: Semester-long research project, examinations and in-class discussions
- Emerge from the major with realistic ideas about how to implement their psychological knowledge, skills, and values in occupational pursuits in a variety of settings
  How Assessed: Class discussions, use of outside resources (e.g., Career Center, student materials prepared by the American Psychological Association)
- Understand the ethical principles of psychological research and practice, as defined by the American Psychological Association
  How Assessed: Tests and preparation of applications to the Institutional Review Board. Additionally, some sections of the course require students to certify successful completion of the National Institutes of Health online ethics tutorial and examination.

Skills
- Use critical and creative thinking and the scientific approach to solve problems related to behavior and mental processes
  How Assessed: Semester-long research project report and presentation
- Apply psychological principles to personal, social, and organizational issues
  How Assessed: Class discussion, semester-long research project
- Learn to conduct meaningful psychological research, including literature review, research design, data analysis, and interpretation
  How Assessed: Semester-long research project report and presentation
- Be able to communicate effectively in a variety of formats
  How Assessed: Semester-long research project report and presentation

Attitudes
- Respect and empathy for others
  How Assessed: In-class discussion. Additionally, some sections of the course utilize feedback forms given to research volunteers to assess their experiences as participants. Information on such topics as researchers showing up on time and being prepared, researcher courtesy and willingness to answer questions, etc., is collected.

- Appreciation of the complexity and dynamic nature of scientific knowledge
  How Assessed: Semester-long research project report and presentation, in-class discussion, examinations.

Additional Information: Approximately 10 sections of PSYC 466 are offered every year to accommodate the roughly 110 seniors that the Psychology Discipline graduates annually. Many projects developed in this course go on to be presented at other conferences (e.g., Psi Chi and Student Research Conferences).

Recent and Ongoing Improvements: The Psychology Discipline continuously improves the Psychological Research capstone because it is essential to our program.
- We have maintained small class sizes in PSYC 466, despite loss of a faculty line and consistently high demand for seats in all psychology courses, by increasing caps in most other PSYC courses.
- We developed an end-of-semester research symposium during which all PSYC 466 students present their research. We recently changed the symposium format to a large poster session held during a weekday afternoon to increase attendance by all psychology students, faculty, and others in the university community.
- To improve assessment of target knowledge, skills, and attitudes, we drafted and are testing a discipline-specific survey of seniors in PSYC 466. The survey measures students' views about their learning and growth in the target areas, as well as the means by which they achieved these gains. As sufficient data become available, we will evaluate the reliability and validity of the survey to inform its revision and continued use.
- To recognize formally the extensive laboratory work involved in PSYC 466, the Psychology Discipline is pursuing changing the capstone from 3 to 4 credit hours and designating it as a laboratory course. This change would convey more clearly to students, graduate schools, and employers the type of in-depth research experience that our students achieve.