

# Chapter XIV: CAPSTONE EXPERIENCES: ASSESSMENT OF THE MAJOR AND LIBERAL ARTS AND SCIENCES OBJECTIVES

## Capstone Course

### *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. Some, but not all disciplines may use discussion of the capstone courses and portfolio work from that discipline to evaluate their discipline curriculum.

### *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.

### *What type of information is sought?*

The faculty may have particular concerns about different aspects of the curriculum.

### *Are the results available by division or discipline?*

By discipline.

### *Are the results comparable to data of other universities?*

No. The university has multiple purposes for its assessment program including the improvement of student learning, the identification of program and university strengths and weaknesses, the encouragement of student self-assessment, and the demonstration of accountability to numerous stakeholders. To accomplish these objectives, Truman requires all students to sit for standardized tests; conducts surveys of enrolled students, alumni, and employers; administers a holistically-scored writing assessment to all students, conducts a university-wide portfolio project, and expects all students to have a capstone experience in the major. The purpose of this report is to describe and analyze the purposes and benefits of capstone experiences.

In most major programs at Truman State University, the capstone experience is a course that seeks to integrate subfields and skills of the major and is taken in the final year of a student's course of study at the university. Many of these courses require that students demonstrate specified skills and knowledge that faculty in the major have developed as learning priorities. During the mid-1980's, Truman made many changes in its curricular requirements. Faculty were encouraged to develop major curricula that followed a sequenced rationale and culminated in a capstone experience to synthesize the major. In 1986, Truman's Faculty Senate adopted a requirement for capstone experiences in all major programs. The goals for capstone courses ranged from providing a checkpoint for faculty and students at the end of a student's program to providing a link to the next point in a student's career such as graduate school or traditional employment.

Over the last decade, capstone courses have evolved. 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 potentially so beneficial.

In addition to assessing learning goals specific to the major, faculty have also been asked to integrate university-wide liberal arts and sciences objectives with the major. As Missouri's liberal arts and sciences institution, Truman is committed to recruiting high ability students and to providing them with a quality education. In its plan submitted to the state of Missouri, Truman developed a three-part learning outcomes paradigm based on knowledge, skills, and attitudes. This paradigm provides a surprisingly common language for comparing the university's capstone experiences that at first seem distinctly varied.

#### 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 student's 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, to designing a research project, to sitting for a locally-developed comprehensive exam. Independent of the capstone course, the university requires each graduating student, if possible, to sit for a nationally standardized exam in the major field. 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 minor programs. Interdisciplinary connections also will be encouraged through the Liberal Studies Program. The university's portfolio assessment of the liberal arts and sciences is implemented through capstone experience 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 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, to analysis, synthesis, and evaluation. Other disciplines focus more generally on problem-solving ability. Case studies, bibliographic 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 on university-wide surveys. Faculty in the major then receive the data on their majors as well as university averages.

### CAPSTONE BENEFITS

Benefits of the capstone courses are varied, but perhaps an examination of the reported benefits of one of the capstones 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.

Students also benefit from the experience. They use their cumulative knowledge and skills to integrate and further develop their understanding of the major. Student's efficacy and satisfaction increase because they are asked to accomplish challenging tasks and because they are provided the opportunity to critique the university and the major. Students report that they found it interesting to produce a selected portfolio reflecting on their college learning experiences.

Ultimately, in order for capstone courses to be successful assessment instruments, the instrument itself must be coupled with the interest of faculty who are committed to student learning. It is easier to merely comply with a mandate to develop a capstone course than it is to produce a course agreeable to all faculty that meets the objectives of integrating student knowledge and assessing student learning. Team-taught courses can enhance the opportunities for faculty conversation and collegiality. Several of the Truman disciplines have structured discipline meetings to expand the observations of the professor(s) responsible for the course to those professors who do not teach the course. Ultimately, it is this stage of the process, the conversation among faculty, that is the key to effective assessment. Program review specifications are adding a section asking faculty to document the conclusions of the discipline's strengths and weaknesses derived from the capstone. This is intended to encourage systematic conversation and review by faculty.

### 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. This year's featured capstone experience is Exercise Science.

## **CAPSTONE EXPERIENCE – ACCOUNTING**

- \* TRADITIONAL ACCOUNTING COURSE
- \* INHERENTLY INTEGRATIVE
- \* CASE STUDY/SIMULATION APPROACH

### **KNOWLEDGE ASSESSMENT**

- \* DISCIPLINE CONTENT AREAS
  - Comprehensive Exam
  - Library Research Paper
  - Case Studies/Simulations
  - Class Discussion
  - Synthesis of Finance, Marketing, and Management
- \* INTERDISCIPLINARY CONNECTIONS
  - Case Studies/Simulations
  - Research Paper
  - Discussion of Current Issues
  - International Strategies
  - Ethics/Social Responsibility

### **SKILLS ASSESSMENT**

- \* WRITING
  - Case Studies/Strategic Audits
  - Research Paper
  - Essay Exams
  - Writing Portfolio
- \* SPEAKING--Extempore
  - Class Discussion
  - Case Study Analysis
  - Argumentation--Take a Position and Defend It
  - Paper Defense
- \* SPEAKING--Formal
  - Group Presentation of Strategy Research Paper
  - Group Presentation and Discussion of Case Study
- \* COLLABORATIVE SKILLS
  - Group Papers and Presentations
  - In-class Application/Problem-Solving Exercises

### **CRITICAL THINKING SKILLS**

- \* COMPREHENSION AND APPLICATION
  - Comprehensive Exams (in some sections)
  - Case Studies/Simulations
  - Research Paper
  - In-class Exercises/Group Work
- \* ANALYSIS/PROBLEM-SOLVING
  - Case Studies/Simulations

Research Paper  
Argumentation

\* SYNTHESIS

Comprehensive Exam  
Case Studies/Simulations  
Research Paper

\* EVALUATION

Group Presentation Evaluation  
Strategic Evaluation and Recommendations  
Portfolio

ATTITUDES ASSESSMENT

\* ETHICS/SOCIAL RESPONSIBILITY

Case Studies  
Class Discussion

\* SELF CONFIDENCE

Argumentation--Ability to State and Justify Position Effectively  
Knowledge of Models Which Become Tools of Analysis

\* SELF ASSESSMENT

Portfolio

**CAPSTONE EXPERIENCE - THEATRE**

\*Seminar format, led by individual theatre faculty on a rotational basis

\*One-credit course that meets as a three-credit hour course

\*Experiences include: senior project (oral and written components), senior theatre manifesto, résumé and/or portfolio construction, simulated job interview, assessment exam, senior exit survey, vocational interview, and numerous analysis/discussion assignments.

KNOWLEDGE ASSESSMENT

- \*Class discussion
- \*Written analysis/discussion assignments
- \*Résumé/personal statement/portfolio construction
- \*Assessment exam
- \*Simulated job interview
- \*Senior project

SKILL ASSESSMENT

\*WRITING

Theatre Manifestos  
Personal Statements and Résumés  
Abstract/Analysis papers

Senior Project

\*SPEAKING (Extemporaneous)

Class Discussion  
Manifesto and Professional/Ethical Issues Debates  
Peer Editing/Feedback Groups for Manifestos and Résumés  
Vocational Interview (interviewing a theatre professional)  
Feedback/Course Evaluation Sessions

\*SPEAKING (Formal)

Simulated Job Interview  
Presentation of Senior Project

\*COLLABORATIVE SKILLS

Class Discussion and Debates  
Peer Review Groups  
Simulated Job Interview—Research and Role-Playing

\*CRITICAL THINKING SKILLS

+COMPREHENSION AND APPLICATION

Assessment Exam  
Abstract/Analysis Papers  
Senior Project

+ANALYSIS

Abstract/Analysis Papers  
Debates Over Professional/Ethical Questions  
Vocational Interview—Designing Questions, Engaging  
Interviewee, Interpreting/Reporting Results

+SYNTHESIS

Development of Theatre Manifesto  
Simulated Job Interview—Research, Preparation, and Performance  
Résumé/Portfolio  
Senior Project

+EVALUATION

Class Discussion and Debates  
Peer Reviews of Manifestos and Résumés  
Simulated Job Interview  
Senior Project

ATTITUDES ASSESSMENT

\*Openness to more than one position and recognition of fact/value distinction

Manifesto Discussions  
Abstract/Analysis Discussions

Vocational Interview Interpretation and Feedback

\*Reflective evaluation of self

Theater Manifestos  
Professional/Ethical Questions Debates  
Videologs Returned to Students  
Simulated Job Interview Feedback  
Senior Project Feedback

\*EVALUATION OF UNIVERSITY AND MAJOR

Assessment Exam  
Senior Survey  
Course Evaluation

**CAPSTONE EXPERIENCE—EXERCISE SCIENCE**

SENIOR SEMINAR

\* TAUGHT BY DIVISION HEAD OR DIRECTOR OF HES  
\* ONE CREDIT COURSE

ES 450 - Senior Seminar. 1 hour.

The purpose of the course is to offer students a chance to refine skills that will be needed to obtain a job, be admitted to graduate studies, and to survive in the world outside of the university setting.

EXAMPLE OF ASSIGNMENTS

Senior Seminar  
Due Dates Spring 2003

	<i>First 8 Weeks</i>	<i>Second 8 Weeks</i>
<b><u>Portfolio Requirement</u></b>		
University Portfolio Requirement	3 March	5 May
<b><u>Application Letters</u></b>		
Copy of Inquiry Letter	17 January	19 March
Copy of Application Letter	29 January	26 March
<b><u>General</u></b>		
List of Relevant Internet Job Sites	24 January	19 March
Philosophy Statement Relative to Vocation	3 February	2 April

Statement and Explanation of Long-term Career Goal and Short-term Goals	10 February	9 April
Reflections Biography	12 February	14 April
Life Assignment	19 February	23 April
Mock Interview	3 March	5 May
Career Field Interview	26 February	28 April
<u>Résumés</u>		
Résumé	27 January	24 March

Senior Seminar  
ES 450/HLTH 450

#### Grade Determination

Pass = satisfactory completion of all required assignments

Fail = non-completion of required assignments

#### Assignments & Attendance

All assignments are due at the beginning of class on the indicated date (if class is not held it is due in my office by class time). **All assignments must be typed and have a cover sheet** that indicates the assignment, your name, due date and the instructor's name.

You are allowed a maximum of two absences. An accumulation of more than two absences will result in FAIL for your final grade. Two (2) late assignments will be equivalent to an absence.

**Repeat assignments** are to be turned in the next CLASS PERIOD from the date the assignment was returned to the class, not the date you picked it up. If not re-submitted as indicated it will be viewed as a late assignment. All assignments must be accepted for a grade to be received.

#### Important Reminder

How you conduct yourself during seminar may influence what I would write in a letter of recommendation. This will be one of the last chances to enhance my impression of you as a professional in Health Science or Exercise Science. Your promptness in turning in assignments and the professional nature of all your efforts is extremely important to me. Treat seminar as a job and I am the employer. Make a lasting impression.

#### Résumé

A résumé is defined as a summary or brief record of one's personal history and experience submitted with a job application. It is targeted for the specific job and is generally not global in nature. A *curriculum vita* is a complete accounting of all your experiences, awards, honors, etc from the beginning. The *vita* generally serves as the resource for the résumé.

You will be required to submit a résumé for a specific job related to your course of study and emphasis area at Truman. You will continue to revise the résumé until it is satisfactory.

Cover Letters (letters that are not signed will be returned and viewed as a late assignment)



You will be required to write two of the three types of cover letters. One is the letter of inquiry, one is the letter of application that accompanies the résumé for the specific job (for class you will be required to only submit the application letter) and the final one is a follow-up letter.

The inquiry letter is an unsolicited communication to the employer on behalf of the job seeker. It is usually the initial contact with the company, and its purpose is to help you gather information necessary to your job search. In the letter of inquiry, you may be requesting the following information: 1. annual reports, 2. affirmative action reports, 3. company/division newsletters, 4. job descriptions, 5. career opportunities, and 6. hiring policies. These are not the only things that can be requested. The main concern is that you obtain enough information to determine whether you wish to apply for any positions they may have available. This letter does not solicit for a job but can determine the types of positions available (broad scope). A résumé is not enclosed with this letter.

The letter of application is a direct communication to the employer concerning a known vacancy. The letter may be in response to a job listing from a newspaper, employment agency or a mutual contact. The writer needs to state the definite purpose in the letter showing the employer that he/she is interested in applying for a specific position. A résumé is attached and a definite strategy or plan of action is outlined so the employer will know how to follow up if desired.

The follow-up letter is most appropriate to send as soon as possible after an interview. The purpose is threefold: 1) to keep your name in front of an employer during the crucial decision-making process; 2) to thank him/her for their time; and 3) to add any information in support of your qualifications for the position. The follow-up letter demonstrates your continued interest in the vacancy and keeps the lines of communication open between you and the employer. A follow-up letter can also be sent to determine the status of your application. It should also provide any additional information that was not covered or indicated in the initial application process or to areas specifically emphasized during an interview. The lack of a follow-up letter could be the deciding factor relative to your employment.

### **Portfolio Table of Content**

Since your freshman year you should have been collecting and maintaining a portfolio of all experiences during your university career. Your portfolio should be organized in some cogent manner that would allow you to find items without difficulty. A complete portfolio should contain, but is not limited to, material from all of your major classes, general education, extra-curricular activity, pattern areas and extra-curricular activities. The portfolio should be well organized with a cover page, table of content and anything else that would enhance an employer obtaining a quality picture of your performance while at TRUMAN or any other college experiences you have had. You are required to submit the table of contents, section indices for your portfolio. You are not required to turn in the actual portfolio unless I feel that the material submitted is not factual. You are to ensure that the table of contents is complete in that it indicates all materials kept from the various classes you have taken.

### **University Portfolio**

You will also be required to submit material for the university portfolio requirement. The requirements will be distributed to you during the second week of the session. Do not lose the material, as it is required for university portfolio submission. Completed portfolios are to be turned in to my office by the indicated date.

### **Biography**

You are required to pick three occurrences that have most influenced your personality. Describe these influences and indicate what role each played. Be complete and to the point. Be sure to provide specific examples to reinforce your answer.

### **Long-Term Career Goal & Short-Term Goals**

You are to delineate your long-term career goal. Where do you professionally want to be by fifteen years from graduation? Outline the short-term goals that must be accomplished to reach the long-term goal. They should focus on the job you would ultimately like to have and potentially retire from. You need to indicate the short-term goals that must be accomplished in order to reach the career goal as well as the interval of time that each will take. You need to indicate the purpose of each short-term goal relative to the fulfillment of your long-term goal. You are also required to indicate the proposed overall time projected to meet your career.

### **ADDITIONAL ASSIGNMENTS**

In addition to the above assignments students are given the opportunity to evaluate and offer corrective feedback relative to the Liberal Studies Program, the major, and their chosen emphasis area. Further, students are given the opportunity to investigate job and college site on the internet, investigate the current list of prerequisites for each course within the major and emphasis area, and to gain experience in expressing their ideas without the risk of failure.

Perhaps the most significant outcome of the Senior Seminar class is to prepare students to increase their confidence in their ability to effectively live in the larger society.

#### **Career Philosophy**

You are to write a career philosophy. A philosophy is a set of values that guides or directs a person. A philosophy is a basic theory: viewpoint, a system of values by which one lives or a system of motivating concepts or principles. Your career philosophy must be specific to your career goal and should delineate your set of values and beliefs that will serve as your guiding values relative to your career goal. I am not interested in your philosophy relative to life in general. I am interested in your philosophy as it specifically relates to your career emphasis.

#### **Mock Interview**

You are required to participate in a mock interview conducted by the Career Center. The interview must be completed before the end of the course and a copy of the evaluation sheet must be submitted as proof of completion. On the back of the evaluation sheet you must evaluate the interview. The evaluation must address the merits of the experience, points you did not like, and what would enhance the benefits of such an experience. This information must be typed. Make your appointment now. The Career Center requires a résumé to be submitted before the date of your interview.

#### **Career Field Interview**

Interview a member of your profession that is working as close as possible to your career pattern. Obtain answers to the following:

1. What is their specific job?
2. How long have they been in the field?
3. How long did it take to get to their current position?
4. What was lacking in their educational preparation?
5. What do they like best about their job?
6. What do they like least about their job?
7. If they could change one thing, what would it be?
8. If they could make one recommendation to you that would help you in your chosen field, what would it be?
9. Have there been any new policies that have affected your job?
10. Are there any professional experiences that you will remember most?
11. What do you do in a typical day?

How has the information obtained altered your perceptions of the field (good or bad)? Based upon the above information what additional actions, on your part, do you consider necessary to be a success in the field?

## **CAPSTONE EXPERIENCE--ENGLISH**

### SENIOR SEMINAR

- \* TAUGHT BY INDIVIDUAL PROFESSORS
- \* FOUR-CREDIT COURSE

English 498. Senior Seminar. 4 hours.

The purpose of the course is to offer a forum for senior English majors to examine their progress toward an English major, determine directions for future studies in the major, and share new studies.

### TYPES OF EXPERIENCES

- Student self-assessment through reflective journal entries and through design and submission of the LAS portfolio,
- Collaborative seminar presentations of research
- Individual “personal best” projects presented in public fora beyond the seminar.
- Knowledge and skills assessment are reflected in the seminar activities.

### METHODS OF CONDUCTING SEMINAR

Seniors review and strengthen their knowledge of disciplinary content areas in discussions of language, literature, and literacy issues through the discussion of the formation of literary canons and application of critical perspectives to canonical and non-canonical works, and by writing two “meditations” on languages and a self-portrait as an “English major.” They demonstrate their abilities in making interdisciplinary connections through their research and presentations and through their review and selection of material for the portfolio.

They demonstrate writing skills in the production and revision of statements of personal philosophy for graduate school applications, letters of application to graduate study or employers, résumés and *curricula vitae*. They demonstrate speaking skills in extemporaneous seminar discussions, in formal, collaborative seminar presentations, and in public presentations in public fora outside the seminar. Self-assessment protocols assisted the students in evaluating their performance in the formal speaking activities. They also reflected on their collaborative skills through the self-assessment protocols.

### CONCLUSION

The English faculty have redesigned the capstone course so that it provides seniors with more opportunity for integrating their studies in five strands of the major and more opportunities for interdisciplinary and collaborative capstone projects.

## **CAPSTONE EXPERIENCE--MATHEMATICS**

A mathematics major fulfills the capstone experience by completing a project which demonstrates his or her ability to study independently some area of mathematics, and to communicate, orally and in writing, the knowledge so obtained.

## THE MECHANISM

Each student will be responsible for choosing a project and a supervisor. If the supervisor approves, the student proposes (in writing) this project to the Undergraduate Committee. The Undergraduate Committee will then decide if the project is appropriate.

At the completion of the project, the student, with the approval of the supervisor, presents the final written report to the Undergraduate Committee, which decides whether the report is adequate. If so, the supervisor makes arrangements for the public presentation. At the completion of this presentation, the student will have completed his or her capstone experience and met the graduation requirement.

## THE PROJECT

Many different types of projects will be considered acceptable. They should satisfy three criteria.

- (1) The student should learn some mathematics outside the classroom setting.
- (2) The student should synthesize material obtained from different sources.
- (3) The student should clearly communicate, orally and in writing, what he or she has learned.

## ROLES OF STUDENT, SUPERVISOR, AND UNDERGRADUATE COMMITTEE

The student is responsible for finding a supervisor and a project, for getting the necessary approvals from the Undergraduate Committee, and, of course, for completing the project. The supervisor's role is primarily to provide guidance. He or she may help in the choice of project (e.g. by suggesting articles to consider), and may need to provide encouragement or suggestions at difficult moments. It is not intended that the supervisor should actually choose the project, or ride hard on the student. The amount of assistance needed will naturally vary, but the project is the student's not the supervisor's. The supervisor will, however, have to approve the student's work before it is taken to the Undergraduate Committee. The Undergraduate Committee's role is mainly to ensure that projects are appropriate. It is their job to disapprove of projects that do not meet the specified criteria. They should not be expected to check papers for accuracy.

## CAPSTONE EXPERIENCE – CHEMISTRY

### SENIOR SEMINAR

- TAUGHT BY INDIVIDUAL PROFESSORS WITH ASSISTANCE FROM COLLEAGUES AND EXTENAL EXPERTS
- ONE-CREDIT COURSE

Chemistry 445, Senior Seminar, 1 hour

The purpose of the course is to assess each major's mastery of chemistry, provide opportunity to prepare for employment, graduate school or professional school, and to invite self-assessment through construction of the LAS portfolio.

### METHODS

To satisfy the three primary goals of the capstone experience, the senior seminar course is divided into three roughly equal segments. The first of these addresses mastery of the major field. The second and third address development of the LAS portfolio and preparation for life after Truman. As no two graduating

classes are precisely the same, the exact content of the senior seminar course varies. However, much remains constant from year-to-year.

Each chemistry senior must demonstrate mastery in the major field by scoring above the 20<sup>th</sup> percentile on the nationally-normed Major Field Assessment Test (MFAT). The first several weeks of senior seminar are devoted to preparation for this exam, which covers all aspects of chemistry from all four years of study. Faculty who are experts in each of the four major areas of chemistry (general, organic, physical and analytical) are invited to participate in this review process.

Approximately one-third of the senior seminar course is devoted to preparation for employment, graduate school or professional school. Experts in job opportunities for bachelor-level chemists are invited to speak on the preparation of résumés, strategies for successful screening interviews, and life in the chemical industry. These experts frequently include alumni. Students are encouraged to take full advantage of the University Career Center and the Job Fair. Those students headed for graduate and professional schools are advised on choosing a school and creating a strong application portfolio. Panel discussions are often held involving recently hired faculty members who are fresh from the graduate experience.

The final purpose of senior seminar is to assist chemistry majors in the preparation of their LAS portfolios. Some time is spent discussing appropriate material for each of the prompts in the portfolio packet.

## **CAPSTONE EXPERIENCE – ECONOMICS**

### SENIOR SEMINAR

TAUGHT BY ONE PROFESSOR IN THE DISCIPLINE  
THREE CREDIT COURSE

### KNOWLEDGE ASSESSMENT

#### DISCIPLINE CONTENT AREAS

Area Exams  
Empirical Research Project Developed in Stages

#### INTERDISCIPLINARY CONNECTIONS

Read article on “Economic Imperialism” and Write a Brief Essay on the Impact of Economics on Other Disciplines

### SKILLS ASSESSMENT

#### WRITING

Summary of Article on Graduate Opportunities or Careers in Economics  
Write Brief Essays on the Contributions of Nobel Prize Winning Economists  
Summary of Article on the Consumer Price Index  
Literature Review  
Formal Empirical Research Paper

#### SPEAKING – Extemporaneous

Class Discussion

Class Participation at Majors and Minors Fair  
Question and Answer Session Following Presentation of Empirical Model and Hypotheses

#### SPEAKING – Formal

Presentation of Summary of Article on Graduate Opportunities or Careers in Economics  
Presentation of Summary of Article on the Consumer Price Index  
Presentation of Empirical Model and Hypotheses  
Presentation of Empirical Research Project  
Discussant on Presentation of Other Student's Project

#### COLLABORATIVE SKILLS

Peer Review of Other Students' Empirical Research Projects

#### CRITICAL THINKING SKILLS

##### COMPREHENSION AND APPLICATION

Area Exams  
Consumer Price Index Computer Assignment  
Linear Programming Computer Assignment  
Multiple Regression Computer Assignment  
Empirical Research Paper

##### ANALYSIS/PROBLEM-SOLVING

Empirical Research Paper  
Linear Programming Computer Assignment

##### SYNTHESIS

Area Exams  
Empirical Research Paper

##### EVALUATION

Peer Review of Other Students' Empirical Research Projects  
Portfolio

#### ATTITUDES ASSESSMENT

##### SELF CONFIDENCE

Review and Application of Tools of Analysis in the Discipline  
Practice in Giving Formal Presentations

##### SELF-ASSESSMENT

Portfolio