Title of Course:
Professional Writing for Science and Technology

I. Descriptions and Credit Hours of Course:
A. Catalog course description: This course will explore professional literacy by introducing forms, methods, standards, and issues central to scientific and technical writing in academic and workplace environments. (3 credit hours)
B. More extensive course description: This course provides students with an opportunity to expand their awareness of professional literacy by introducing forms, methods, standards, and issues central to scientific and technical writing. Both product and process approaches will be utilized with an emphasis on making the transition from academic work to professional world writing tasks. Throughout this course, students will differentiate the conventions of writing and research for various genres; write documents for diverse audiences; develop strategic methods of writing which enhance credibility and effectiveness; analyze and synthesize research from a variety of sources; develop effective methods for collaboration; practice oral communication skills; develop an awareness of and utilize ethical workplace practices; experiment with a variety of technological tools, especially the use of graphics; reinforce usage of Edited Standard English.

II. Interdisciplinary Nature of the Course:
The principle guiding the course structure emphasizes that written communication is an integral component of professional work, whether that work be in science, technology, business, or other fields. Over the course of the semester, this class will focus on how written communication is used by science and technology professionals. Students will learn the many different ways written communication functions in their careers and then apply that knowledge for a variety of purposes and audiences (e.g. writing assignments may include lab notes, literature reviews, proposals, reports, instructions, etc.)

The course combines the perspectives from Written Expression (through written documents), Oral Expression (through oral presentations and collaborative assignments), Living Systems or Physical Systems (through the use of case studies to prompt writing), and Behavioral Systems or Social Systems (through analysis of audience to guide rhetorical choices).

The course will address the subtheme, Integration of Knowledge: Living in an Interdependent Universe through an emphasis on appropriately analyzing audience and communicating effectively. For example, a portion of the course will examine the content and style of communication appropriate to various audiences (e.g. the local community, funding sources, colleagues, the scientific community, etc.) when providing information about a scientific case, and on strategies for making scientific research and proposed solutions to problems accessible to those various audiences.

III. Prerequisite(s):
EN140 and any course from Behavioral Systems, Living Systems, or Physical Systems. This course will build upon the base level of knowledge attained in these courses.

IV. Purposes or Objectives of the Course:
Course objectives will include the following:

☑ Write documents for various audiences (University Studies Objectives 2, 3, 6)
☑ Develop strategic methods of writing which enhance credibility and effectiveness (University Studies Objectives 2, 3, 6)
Practice oral communication skills (University Studies Objective 3)
Analyze and synthesize research from a variety of sources (University Studies Objective 1)
Develop effective methods for collaboration (University Studies Objectives 3, 5, 6, 9)
Develop an awareness of and utilize ethical workplace practices (University Studies Objectives 7, 9)
Explore the use of a variety of technological tools, especially the use of graphics, in creating documents
that effectively meet the writer's purpose and the audience's needs while also being culturally sensitive to the audience (University Studies Objectives 3, 8)
Reinforce usage of Edited Standard English (University Studies Objective 3)

V. Expectations of Students:
- Attend class regularly
- Complete all of the assigned reading
- Take an active role in collaborative assignments (e.g. contributing to discussions, completing work assigned by the group, meeting group-imposed deadlines, etc.)
- As outlined by case study prompts, conduct necessary research and then complete all written assignments (four major projects—two completed collaboratively and two completed individually; projects will consist of multiple documents including but not limited to correspondence writing, literature reviews, proposals, reports, web pages, informational handouts and brochures, instructions, etc.; impromptu assignments in which students will have a class period to complete a writing task that appropriately responds to a given scenario)
- Compile a final portfolio consisting of a representative collection of the students' writing and a self-reflection on skills learned as evidenced by the portfolio's contents
- Present a project orally to the class
- Demonstrate an understanding of course content by applying the skills and strategies learned over the course of the semester to the tasks assigned for the final exam

VI. Course Outline:
- Communicating in the workplace (University Studies Objectives 3, 6) 6 hrs
  Content will include introduction to writing in the workplace, examining the role of writing in various career disciplines; writing style appropriate for workplace communication; online writing; and oral communication.
- The writing process (University Studies Objectives 1, 2, 3) 5 hrs
  Content will include planning and researching, organizing and drafting, revising and editing.
- Audience analysis (University Studies Objectives 1, 2, 5, 6, 9) 6 hrs
  Content will include profiling audience's needs, values, and attitudes; cross-cultural communication; rhetorical choices for writing and research as guided by audience analysis.
- Effective research (University Studies Objectives 1, 2, 6) 6 hrs
  Content will include instruction in developing a research methodology, triangulating materials, managing information, analyzing source material, and documentation styles.
- Document design (University Studies Objectives 3, 8) 4 hrs
  Content will include principles of document design and creation of graphics.
- Collaborative writing (University Studies Objectives 3, 5, 6, 9) 6 hrs
  Content will include strategic planning, managing conflict, and determining team roles.
- Ethics in the workplace (University Studies Objectives 7, 9) 3 hrs
  Content will include defining personal, social, and conservation ethics; resolving ethical dilemmas; ethics in the workplace; and copyright law.
- Genres of Technical Communication (University Studies Objectives 1, 2, 3, 6) 9 hrs
  Content will include instruction in the creation of various documents with emphasis on rhetorical situation, writer's purpose, form, content, and style.

VII. Textbook(s) and Course Materials:
Textbook will be bundled with MyTechCommLab, an online program that provides multimedia resources and interactive model documents and activities for writing, research, and document design.

VIII. Basis of Student Evaluation:
Students will be evaluated as follows:

1. Daily assignments and class participation (20%): Throughout the semester, students will be asked to participate in a variety of exercises. These may include homework assignments, a minimum of four impromptu writing activities, quizzes, and collaborative writing as well as regular participation in class discussions. Students should be prepared to ask questions and/or discuss their perspectives on the readings, their research, and/or in-class activities.

2. Initial completion of projects (20%): Over the course of the semester, students will complete four major projects, two collaborative and two individual.

3. Oral presentation (10%): Each student will select a project or portion of a project, presenting it orally to the class. If possible, members of the community will be invited to attend the presentations.

4. Portfolio (40%): As a capstone assignment for the course, students will compile a portfolio consisting of initial drafts for all projects and impromptu writing, revisions for two projects and two impromptu writing activities, self-reflection discussing their understanding of technical writing, and introductions to each revised document with a rationale for inclusion in the portfolio.

5. Final exam (10%): Applying the skills and strategies they have learned throughout the semester, students will submit at least one document appropriate for a given scenario.

IX. Justification for Inclusion in the University Studies Program:

Objective 1: Demonstrate the ability to locate and gather information.

Emphasis: Significant

Content: Assignments will require the creation of informative documents that address differing aspects of an assigned case study. This may include but not be restricted to documents relating the case to different sectors of the population and potential resolutions and/or applications to remediate issue/s surrounding that particular case study. Preparation of documents will require the gathering of pertinent information from a variety of sources, with students conducting both primary and secondary research. Instructor will provide guidance for the acquisition of appropriate literature, and instructional time will be used to introduce students to a variety of citation styles and their use in accord with the students' rhetorical purpose for writing.

While the instructor may choose the subject for the case studies, suggested subjects are: 1) a study of sinkholes in the Cape Girardeau area, with emphasis on identification of the cause and prevention of future sinkholes; 2) a campus-wide implementation of a green initiative, with emphasis on energy conservation, waste reduction, and green technologies.

Teaching Strategies: Through lecture and discussion, the instructor will address analyzing audience and the need for specific type/s of information, which provides students with a starting point in locating and gathering information. The instructor, drawing on the knowledge of the class participants, will discuss and demonstrate various methods of locating different types of information and conducting both primary and secondary research as it applies to the rhetorical context of a given document. During the case study or studies, the student will identify an aspect of interest regarding the case study and develop an approach to address the identified issue through group discussion and individual evaluation. The student will develop a timeline for completion that will include gathering of identified background information and/or research, format of document/s to be developed, and time of presentation of end product/s for that particular case study. The instructor will review student-gathered information, evaluate its appropriateness and completeness, and offer suggestions as necessary. The instructor will assist students in the development of their projects through guided discussion, individual or group, and review of preliminary drafts.

Student Assignments: For all assignments, the student will be required to conduct research, both formally and informally, and then use the citation style appropriate for the context of a given document. Projects will require an initial report outlining the issue, approach to resolution and resulting proposed solution(s) (i.e. literature review, initial drafts, presentation etc.) with a projected timeline. In the various documents, the student will demonstrate understanding of the target audience's needs through an ability to locate and gather information appropriate to the rhetorical context of each document. A writing portfolio will be developed and maintained throughout the semester and will include initial/working and final drafts of all documents, as well as a compilation of all notes, research materials, and reflections on project/progress.

Student Evaluation: Grade assignment will be based on execution and completeness of projects, to include initial reports, literature reviews and final products. The student's ability to assess a given audience's needs and the types of information appropriate for those needs as well as their ability to locate and gather that information will directly
Objective 2: Demonstrates capabilities for critical thinking, reasoning, and analyzing  
Emphasis: Significant  
Content: Developing capabilities for critical thinking, reasoning, and analysis will be pervasive throughout the course. The content of the course will include discussion of how to write for various target audiences, how to write in a way that enhances credibility and effectiveness, how to analyze and synthesize research from a variety of sources, how to effectively collaborate, and how to use a variety of technological tools and graphics.  
Teaching Strategies: Through modeling, group discussion, collaborative activities, and writing to learn, the instructor will enable students to become more aware of their process and the critical thinking and analytical skills required to solve problems and document progress. The instructor will emphasize the importance of analyzing audience and rhetorical context and their influence on both content and design of a document.  
Student Assignments: Throughout the course, the student will be required to complete writing tasks that necessitate conducting research, evaluating sources, and evaluating their target audiences. The student will be given writing assignments on two case studies as well as an assignment on a topic in his/her field of study and an assignment on a self-initiated topic. For all assignments, the student will be required to conduct research, both formally and informally. By applying skills in critical thinking, reasoning, and analysis, he/she will effectively be able to locate valid and useful source materials. Projects will require an initial report outlining the issue, approach to resolution, and resulting proposed solution(s) (i.e. literature review, initial drafts, presentation etc.) with a projected timeline. In the various documents, the student will demonstrate understanding of the target audience and rhetorical context for a specific document through an ability to analyze the audience's (i.e. stakeholders') needs. A writing portfolio will be developed and maintained throughout the semester and will include initial/working and final drafts of all documents, as well as a compilation of all notes, research materials, and reflections on project/progress.  
Evaluation of Student Performance: The student will be required to complete impromptu, in-class writing assignments in order to demonstrate critical thinking skills as well as understanding of specific content discussed in the course. The portfolio will also provide documentation for the student's evolving thought processes over the course of the semester. A portion of the final course grade will reflect the student's skills in critical thinking, reasoning, and analysis.  

Objective 3: Demonstrate effective communication skills.  
Emphasis: Significant  
Content: This course will provide students with an opportunity to expand their awareness of professional literacy by introducing forms, methods, standards, and issues central to written and oral communication in the workplace. Both product and process approaches to writing tasks will be utilized with an emphasis on making the transition from academic work to professional world writing tasks. Course objectives will include the following:  

- Write documents for various audiences  
- Develop strategic methods of writing which enhance credibility and effectiveness  
- Practice oral communication skills  
- Analyze and synthesize research from a variety of sources  
- Develop effective methods for collaboration  
- Develop an awareness of and utilize ethical workplace practices  
- Explore the use of a variety of technological tools, especially the use of graphics  
- Reinforce usage of Edited Standard English  

Teaching Strategies: Instruction will be provided in a variety of formats including lecture, small group, one-to-one, workshop, and student-led. Lectures will cover information about strategies for approaching writing in the workplace, designing various documents, collaborative writing, etc. The instructor will provide examples and model effective and ineffective communication practices. Preferably, the class will meet in a computer classroom; utilizing a workshop approach to instruction, the instructor can meet with students individually and in small groups to provide immediate feedback on their work and address problems or challenges as they occur. The workshop approach also enables greater collaboration among students as they work on their projects.  
Student Assignments: The student will complete a variety of writing tasks, both individually and collaboratively, impromptu and longer term. Each assignment will require that the student learn a formal structure of technical
communication, while also fostering literacies that can be applied to a variety of rhetorical contexts and situations. Required assignments will include four major projects pertaining to the assigned case study (including but not limited to correspondence writing, literature reviews, proposals, reports, web pages, informational handouts and brochures, instructions, etc.); two of these projects will be completed collaboratively, and two will be completed individually. The student will also be required to select one project or a portion of a project to present orally to his/her classmates. At various times throughout the semester, the student will complete impromptu assignments; e.g. at the beginning of class, he/she will be given a scenario and will have the class period to complete a writing task that appropriately responds to the scenario. At the end of the semester, a collection drawn from the coursework will be presented in a final portfolio, which will be accompanied by a self-reflective introduction on the student's development throughout the course of the semester. In the portfolio, the student is expected to show a proficiency in knowledge of the formal structures of technical documents, ability to write for a variety of audiences in a variety of contexts, successful collaboration with other writers, awareness of visual design elements, and use of a variety of media.

The portfolio will serve as a representative collection of the student’s writing completed for this course and can serve as representatives of the student writing capabilities for future job interviews.

**Evaluation of Student Performance:** For each assignment, the student will be given a prompt identifying the communication task and the performance expectations. The student will be evaluated according to how well he/she meets the criteria for the task. Because development of effective communication skills is the very core of this course (i.e. impromptu writing tasks, collaborative assignments/writing, oral presentations, writing portfolio, etc.), the student’s grades will reflect an ability to achieve this objective.

**Objective 4:** Demonstrate an understanding of human experiences and the ability to relate them to the present.

**Emphasis:** Not Emphasized

**Objective 5:** Demonstrate an understanding of various cultures and their interrelationships.

**Emphasis:** Some

**Content:** While the depth of this objective’s coverage in the course will depend on the instructor’s selected case study, this objective will be addressed through awareness and analysis of audience for a given document. In addition, the student will be required to work collaboratively with his/her peers; depending on the composition of the class, the student may develop skills in understanding others’ cultures as he/she works with peers.

**Teaching Strategies:** Through lecture, discussion, and modeling, instructor will define audience analysis and demonstrate how to effectively determine a given audience’s needs and then tailor both written and oral communication to meet those needs.

**Student Assignments:** Required assignments will include four major projects pertaining to the assigned case study (including but not limited to correspondence writing, literature reviews, proposals, reports, web pages, informational handouts and brochures, instructions, etc.); two of these projects will be completed collaboratively, and two will be completed individually. The student will also be required to select one project or a portion of a project to present orally to classmates. In preparation of all of these assignments, the student will be expected to analyze the target audience and then make choices appropriate for that audience.

**Evaluation of Student Performance:** This objective will have some emphasis, but that emphasis will be in conjunction with skills in critical thinking, reasoning, and analysis; the achievement of these objectives will be assessed for a portion of the final course grade.

**Objective 6:** Demonstrate the ability to integrate the breadth and diversity of knowledge and experience

**Emphasis:** Significant

**Content:** The course begins with an introduction to the integration of the disciplines of communication and the sciences, with a particular emphasis on appropriately analyzing the audience and communicating effectively. Lectures will supplement models of communication formats within various scientific disciplines, as well as in other forums such as the popular press, office memos, and proposals to corporate clients. For instance, in the case study on sinkholes, the course will focus on the content and style of communication appropriate to varied audiences when providing information about local sinkholes, and on strategies for making scientific research and proposed solutions available to those various audiences.

**Teaching Strategies:** Each case study in the course will incorporate scientific research findings on a particular topic with elements from a variety of scientific disciplines. Students will work in groups, sharing expertise from their own majors, to integrate approaches from different scientific disciplines. The groups will brainstorm to
identify target audiences and interview selected members of those audiences, such as working scientists, local politicians, and businesspeople while determining each audience's interest level and needs regarding the specific issue. During group discussions in class, students will compare and contrast the approaches and expectations of the different audiences. They will then apply material from readings and lectures to propose appropriate methods of communication with each audience.

Student Assignments: In case studies, groups and individuals will be required to produce written material that integrates the scientific information with communication techniques designed to reach selected audiences. For instance, in the sinkhole case study, the student might identify the general public, contractors, community leaders, and other researchers as target audiences. One part of the assignment will be this identification of audiences, along with suggested characteristics of effective communication to each audience. The student will report orally on interviews with members of the target audiences, as described above. Next, the student will apply the communications techniques to the specific material, writing brochures, press releases, proposals, and reports. In addition, the student will critique public information sources on geological disturbance issues for their appropriateness to the target audiences.

Student Evaluation: A portion of the final course grade will assess the student’s ability to integrate the breadth and diversity of knowledge and experience. Student work will be evaluated for its scientific correctness and its effectiveness as communication, but the most important aspect in evaluation will be the extent to which the communication is appropriate to its target audience. In audience analysis assignments, the student will be evaluated specifically for an ability to integrate understanding of the scientific information, understanding of the needs and capabilities of the target audiences, and the communication techniques.

Objective 7: Demonstrate the ability to make informed, intelligent value decisions.
Emphasis: Some
Content: A component of the course curriculum will emphasize the development of awareness of and utilization of ethical workplace practices. In addition, appropriately identifying and analyzing an audience will involve making decisions that are in the best interest of the various audiences that are directly and indirectly involved in the issue.
Teaching Strategies: Through lecture and discussion, the instructor will define ethics in the workplace; readings and examples will supplement this discussion to illustrate the implications of unethical practices. Group and whole class discussions will also identify various stakeholders and their involvement in the given issue.
Student Assignments: The student will apply an ability to make informed, intelligent value decisions as he/she determines how to effectively meet the needs of a given audience. The achievement of this objective will be most evident in documents that address resolutions, proposed solutions, and/or proposals. The student may also write critiques or analyses of ethical issues as they pertain to the particular assignment.
Evaluation of Student Performance: A small portion of the course grade will assess the student’s ability to make intelligent value decisions. While this objective will be most apparent in only a few written documents and thus a component of that assignment’s evaluation, sustained achievement of this objective will be a peripheral yet consistent thread in the portfolio.

Objective 8: Demonstrate the ability to make informed, sensitive aesthetic responses
Emphasis: Some
Content: As an aspect of document creation, page design, layout, graphics, and use of color will be addressed.
Teaching Strategies: Through lecture and discussion, instructor will emphasize the importance of aesthetics in document design. Connections will be made to audience analysis and cultural awareness as they relate to aesthetics.
Student Assignment: The student will apply principles of effective layout and design to the various documents he/she creates. Depending on the audience for a given document, the student will have to make decisions about graphics, color, format, etc.
Evaluation of Student Performance: While not a major consideration for evaluation, student work will be evaluated on the aesthetically pleasing nature of the document. In addition, document design as it relates to consideration of audience will be evaluated.

Objective 9: Demonstrate the ability to function responsibly in one’s natural, social, and political environment.
Emphasis: Some
Content: The student will be required to complete several assignments collaboratively. In addition, by selecting case studies which explore relevant local issues, instructors require students to consider real implications for their local natural, social, and political environment.
Teaching Strategies: Through lecture and small and large group discussion, instructor will demonstrate the value of responsible behavior in one's environment. Instructor will also relate this objective to instruction regarding audience analysis and ethical standards.

Student Assignments: In all written assignments, the student will be required to analyze audience; an offshoot of effective analysis is an ability to function responsibly in one's environment. At the same time, the student will be required to complete several assignments collaboratively while also utilizing individual areas of expertise; the ability to work together efficiently and productively will demonstrate achievement of this objective.

Evaluation of Student Performance: The student's ability to collaborate effectively will directly affect the quality of the finished product. While not a major individual component of the final course grade, this objective is inextricably linked to effective audience analysis and consideration of ethical standards.

X. Background: The instructor(s) for the course should first have significant training and/or experience in the teaching of writing; this would include familiarity with rhetorical theory, especially as it applies to technical writing. Also desirable is familiarity with, if not expertise in, one or more scientific or technical disciplines. Instructors for the course should be at least broadly familiar with the contexts for scientific and technical writing, with the major genres of such writing, with the techniques by which it is produced, and with the resources available for writers in scientific and technical fields.

XI. Class Size: Optimal size for this course is 20.