

Handbook for
CSCI 491 Computer Science Internship

**Department of Computer Science and
Quantitative Methods**

College of Business Administration

Winthrop University

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1. What is a Computer Science Internship?

A Winthrop University computer science internship is an educational strategy that integrates classroom studies with work-based learning that is related to the student's academic curriculum and career goals. It is based on a goal-oriented relationship among the three internship partners:

- the CSQM Department,
- the Hiring Organization, and
- the Student.

At the work site, the student engages in a variety of professional work activities designed to provide a total learning experience which meets the student's written learning objectives. In addition, the journal, term paper, and presentation components of CSCI 491 provide the opportunity for the student to reflect upon the experience and integrate the learned material into her/his CSCI coursework. The internship provides the student an excellent opportunity to self-evaluate her/his career goals and accordingly plan the remaining coursework.

Academic credit is **not** given for work experience alone. Rather, work experience is combined with related classroom course requirements. Internships in industry are based on the principle that learning does not confine itself to academic achievement, but is equally dependent upon practical experience.

2. Course Requirements

To receive academic credit for an internship, the student must satisfactorily complete the following minimum requirements:

1. Complete the Measurable Learning Objectives. This item must be completed before the beginning of the start of the semester.
2. Complete 150 hours of satisfactory work experience with an approved employer.
3. Maintain a daily journal of the work/learning experience while on the job.
4. Attend the Internship class meetings as assigned.
5. Receive satisfactory evaluations on all three employer progress reports.
6. Complete a term paper as outlined in this handbook or as assigned by the Internship Course instructor.
7. Complete a final presentation to the CSQM faculty or a student group such as the ACM.

Appendix A provides a checklist of course requirements. That check sheet should be filled out by the student and submitted to the Internship Course instructor **before** the beginning of the semester. That form, along with all other documentation such as the timesheets and term paper, will be given by the course instructor to the department chair as a hard-copy file for storage. The student's final letter grade for the course will be noted on the check sheet.

3. Learning Objectives

Learning Objectives are a set of statements which clearly and precisely describe two things which will occur during your internship. First, the “Activities Objectives” lists what you intend to accomplish for the internship organization during your work term, i.e., the activities which will occur. The second, “Growth Objectives” describes what you will add to your expertise, knowledge, skills and development in this area.

Start developing your Learning Objectives by reviewing the employer's job description, noting areas where you feel you can gain new skills and increase your knowledge. It is important that you avoid broad general statements and confine your objectives to those which are measurable and can be accomplished during a single semester.

3.2 Activity Objectives

An Activity Objective usually combines three major components to form a single sentence. These components are Activity, Time Frame, and Evaluation. The activity is the expected achievement; the time frame is the expected completion date and the evaluation is the stated method of measurement. Activities must be measurable. An example of a written Learning Objective statement would read:

By the end of March, I will complete integration testing of the PHP script that generates monthly inventory reports. The testing procedures and outcomes will be reviewed by the assistant database administrator.

activity = software testing

time frame = by the end of March

evaluation = review by a supervisor

3.3 Growth Objectives

As you work in your internship position, it is important for you to focus on exactly what skills or areas of expertise you are acquiring. Growth Objectives describe what you will learn or what competencies you will gain from the activities you are engaged in for your internship. The Growth Objectives are especially important when you begin searching for a full-time

career position and want to effectively communicate your ability to be an important addition to a hiring firm. Each of your Activity Objectives will ideally lead to a Growth Objective. Thus, for the example Activity Objective above, your Growth Objective might be:

I will gain expertise in writing production quality PHP scripts and improve my ability to produce software documentation.

The following are some important things to remember in developing learning objectives.

- Generally, students will identify four or five areas of growth based on the various activities they will be involved in for their jobs. This will, however, differ for each student.
- Make sure your Activities Objectives are as specific and as measurable as possible.
- Try to confine objectives to those which can reasonably be accomplished during the semester.
- When possible, make your objectives quantitative. For example, "increase speed by 25%".

Your supervisor can help you identify specific areas of growth based on the various activities you will be involved in during your internship.

4. Learning Journal

Student interns are required to maintain a daily or weekly journal of their learning experiences. Maintaining a journal will make it easier for you to recall and report on your daily or weekly work experience. In addition, it will help you gain the most from your experience. The journal must be typed. The journal must contain two sections - the Log section and the Reflection section.

4.1 Log Section

A job log reports all of the activities that you have done for a specific work period. Logs help professionals evaluate how effectively they use their time. As well, job logs can inform managers about the tasks that engage most of the intern's time and may have implications for job design. In this case, a log is helpful in making sure that you are engaged in activities during this internship that truly further your development as a professional. For each day or week on the job the intern should record the following:

- The date and hours you worked
- The activities you completed
- The name of your supervisor for those activities

4.2 Reflection Section

The primary purpose of the reflection section is to provide an opportunity for you to integrate your formal education and practical experience. The reflection section should discuss the activities you did during the work period in terms of how your coursework informs your experience. In this section interns should explain an activity or event that provided a learning experience. What happened? Who was involved? What was the problem? Recount how you and the other people in the situation responded. Identify any relevant concepts from your coursework that apply to this situation.

It is important that you keep your journal current. Write down things on the day they occur--otherwise they won't make sense or be useful. The journal will be reviewed by your Internship Course instructor and may be used in future CSCI courses.

5. The Course Term Paper

All students are required to write a Course Term Paper. One of the objectives of the internship is to gain a more thorough understanding of how organizations in this field operate and how your supervisor organizes his/her work. This paper provides an opportunity for students to integrate their coursework into a culminating practical experience. A successful internship project yields a meaningful and substantive analysis of the work performed, as well as the structure and organization of the group performing the work.

Students should use external references as well as personal experience to write their paper. The suggested outline of the paper, found in Appendix F, is meant to prompt thinking – not limit it. Please do not confine your paper to answering these questions. Go beyond the suggestions provided here and explore your topics further.

6. Final Presentation

All students receiving credit for CSCI 491 must make a public final presentation before credit for the course will be granted. The presentation should last at least 30 minutes. The term paper provides a good possible outline for the presentation. The audience for the presentation will be selected by the Internship Course instructor. The most appropriate audience will include both faculty members and fellow CSCI and CIFS students, such as a meeting of the ACM student chapter. But, the course instructor may decide a particular class may be more appropriate. For example, a student whose internship involved database work might present their work experiences to the database class.

CSCI 491 CHECKLIST

INTERN: _____

SEMESTER: _____

INSTRUCTOR: _____

APPROVED BY COURSE INSTRUCTOR BEFORE THE BEGINNING OF THE INTERNSHIP SEMESTER:

_____ Student's Resume

_____ Job Description from Employer

_____ Student Registered for CSCI 491

APPROVED WITHIN THE FIRST TWO WEEKS:

_____ Learning Objectives

SUBMITTED THROUGHOUT THE SEMESTER:

_____ Progress Report One, with timesheets

Hours: ____

_____ Progress Report Two, with timesheets

Hours: ____

_____ Supervisor's Final Evaluation, with final timesheets

Hours: ____

Total Hours: ____

COMPLETED IN THE LAST WEEK OF THE COURSE:

_____ Evaluation by Student submitted to Department Chair

_____ Internship Journal

_____ Term Paper

_____ Final Presentation

INTERN'S MEASURABLE LEARNING OBJECTIVES

(Please type)

The written objectives should clearly describe what you intend to accomplish during your internship work term. Objectives should be reviewed by your employer/supervisor during the first two weeks of the term. At the end of the semester, both your supervisor and instructor will evaluate how well you accomplished each of the objectives.

Activity Objectives

Growth Objectives

Student's Signature

Date

Employer Supervisor's Signature

Date

Course Instructor's Signature

Date

INTERNSHIP PROGRESS REPORT ONE

(To Be Filed at the Completion of 1/3 of the Internship Period)

INTERN'S STATEMENT

Intern's Name _____

Report # 1 Covering the period from _____ to _____
(date) (date)

1. Describe what you did during this period.

2. Describe what you learned during this period.

Intern's Signature _____ Date _____

=====

EMPLOYER'S STATEMENT

Please comment on the intern's work during this period.

Supervisor's Signature _____ Date _____

INTERNSHIP PROGRESS REPORT TWO

(To Be Filed at the Completion of 2/3 of the Internship Period)

INTERN'S STATEMENT

Intern's Name _____

Report # 2 Covering the period from _____ to _____
(date) (date)

1. Describe what you did during this period.

2. Describe what you learned during this period.

Intern's Signature _____ Date _____

=====

EMPLOYER'S STATEMENT

Please comment on the intern's work during this period.

Supervisor's Signature _____ Date _____

FINAL EVALUATION OF STUDENT INTERN

A major benefit of the internship experience for the student is the opportunity to receive a critical evaluation of their strengths and weaknesses and to receive recommendations for improvement. Please arrange a meeting with your intern at least one week before the end of the term to complete this form and discuss the intern's performance. Your intern will not receive credit until this form is completed and returned.

Student Intern:
 Signature _____
 Printed Name _____
 Date _____

Supervisor:
 Signature _____
 Printed Name _____
 Date _____

Please rate the intern on the following characteristics by checking the box which most represents your evaluation.

Characteristics	Excellent	Above average	Average	Less than average	Poor	No Opportunity to Evaluate
Maturity						
Dependability						
Attendance and Punctuality						
Quality of work						
Ability to Learn						
Resourcefulness						
Accepts responsibility						
A positive work attitude						
Professional behavior and Appearance						
Can work independently						
Can work with others						
Can work under pressure						
Has good speaking skills						
Has good writing skills						
Has good listening skills						

2. What additional comments would you like to make about the intern's work characteristics?

3. What are the intern's greatest strengths?

4. What does the intern need to work on improving?

5. What suggestions do you have for improving Winthrop's internship program?

THANK YOU!

EVALUATION OF INTERNSHIP EXPERIENCE BY STUDENT

An essential part of a successful internship program is providing students with high quality internship experiences. In order to maintain this quality it is imperative that we receive feedback from our student interns.

Please complete this confidential form and return to the CSQM Department Chair.

You will not receive credit for this course until this form is completed and returned.

Intern _____

Date _____

Employer _____

Supervisor _____

1. Please rate the internship experience on the following characteristics by checking the box which most represents your evaluation.

How do you rate	Excellent	Above average	Average	Less than average	Poor	No Opportunity to Evaluate
Your immediate supervisor						
Your co-workers						
Your opportunity to learn new skills						
Your opportunity to learn about the organization's overall operations						
How well the internship experience made use of what you have learned in your computer science courses						

2. What were the greatest benefits you received from this internship?

3. What were the biggest problems you encountered in this internship?

4. Did this internship meet your expectations? Explain.

5. What suggestions do you have for improving the computer science internship program?

Suggested Outline of the Term Paper

I. The Industry

- A. Characteristics (You will probably want to briefly describe the overall business of the industry, future prospects for the industry, the types of technology they use...)
- B. Future of the Industry (You may wish to consider the career opportunities in this industry.)

II. The Organization

- A. History
- B. Characteristics (where the organization is located, the number of employees, the type of business the organization is in, ownership of the organization, etc.)
- C. Management Structure (You may be able to acquire an organizational chart which shows graphically how the management and functions of the organization are organized.)
- D. Corporate Culture (An understanding of the organization's culture may be obtained from your supervisor, from other employees, and, most importantly, from your own observations.)
- E. Customers which the organization serves.
- F. Products (You should describe the goods and/or services which the organization provides for its customers. You may also wish to consider how the organization's products are positioned among competing products.)
- G. Strategies (In this section you may wish to discuss the organization's overall growth and development strategy, their focus on and activities in research and development, what development methodologies are employed, how the software developers interact with users, ...)
- H. Appraisal of Regional or Global Competition of the Organization

III. Professionals Employed by the Organization

What are their job titles? What do they do in their careers? What are their strengths and weaknesses? What is their education and work history? What special skills do they bring to their jobs? What technical skills and personality characteristics seem to be important for success in these careers?

IV. Recommendations to the Organization

Here you may wish to describe your overall perspective on the organization and what changes you would recommend. Some areas you might want to consider are the overall organization, the department where you were employed, the activities of people you worked with, the overall structure of the organization, corporate culture, hardware and software technologies that the organization employs, or any of the areas discussed previously in this paper.

The quality of this section is completely dependent on the rigor of the analyses performed in the previous sections. If your analysis is shallow, your recommendations will be shallow also. Substantive recommendations can only be made if the analysis is meaningful and the product of a considerable thought.

IV. Learning Through the Internship Experience

Here you may wish to review your learning objectives, your journal entries, or the actual work you have completed to summarize exactly what you have learned. What knowledge have you acquired? What expertise or competencies have you gained? How have you been changed by the internship experience?

VI. Overall Perspective

Here is the place for your final perspectives on the internship experience. Has it met or exceeded your expectations, or not? Have your career goals been changed or reinforced by the experience? Has the internship experience made you examine and evaluate your coursework differently? Knowing what you know now, what would you have done the same and what would you have done differently in your life as a university student? What would you advise to other students in an internship program? What would you say to freshmen entering Winthrop because of this experience? What would you tell other students who want to enter a career in this industry? How would you feel about a full-time career with this organization?