

# ITP321 – Programming Enterprise Resource Planning Systems

**Instructor:** Richard W. Vawter  
**Office:** OHE 530B  
**E-Mail:** [vawter@usc.edu](mailto:vawter@usc.edu)  
**Phone:** (213) 740-9541

**Class Web Page:**  
<http://www-rcf.usc.edu/~vawter/classes.html>  
or  
<http://blackboard.usc.edu/>

## Course Description:

This course provides the student with the concepts behind the design and programming methodology of Enterprise Resource and Planning systems (ERP's). The architecture of ERP's, as well as the object-oriented hierarchy of ERP systems are explored in depth. The student will learn to design, code, and implement custom programs for enterprise information systems with emphasis on the SAP R/3 environment by using the ABAP/4 programming language. Programs will be written to query a relational database for specific information, create internal tables for manipulating that data, and to design interactive reporting screens. Additionally, programs will be written to transport data between ERP systems and to demonstrate the power of the capabilities of using existing Function Modules and BAPI's (Business Application Programming Interface).

## Required Textbook:

1. Introduction to ABAP/4, Programming for SAP, by Gareth M. de Bruyn and Robert Lyfareff, Prima Tech, ©1998, ISBN: 0-761513922.

All other necessary material will be provided to you in class.

## Class Schedule:

Week	Topic	Class Assignment	Lab Assignment
Week 1.	Course Overview, Begin discussing the ABAP/4 Workbench	Introduction.	No lab assignment this week.
Week 2.	Relational Databases, ABAP/4 Workbench, & the Data Dictionary	Chapter 1. Chapter 7.	<b>Project #1</b> – Programming Environment, due week 3.
Week 3.	Basic programming, Data types & variables, and the Debugger.	Chapter 2. Chapter 4. Chapter 18.	<b>Project #2</b> – Using Variables, due week 4..
Week 4.	Working with variables and manipulating data.	Chapter 3. Chapter 19 for next week	<b>Project #3</b> – List Screen, due week 5.
Week 5.	Program Flow and Modularization. Plus, Use of Runtime Analysis Tools	Chapter 5. Chapter 10.	<b>Project #4 – Modular Programming, due week 6.</b>

Week	Topic	Class Assignment	Lab Assignment
Week 6.	<b>Exam 1</b> Working with Internal Tables to modify data.	Chapter 6.	<b>Project #5</b> – Internal Tables, due week 7.
Week 7.	Dialog Lists (aka Selection Screens)	Chapter 8.	<b>Project #6</b> – Programming Selection Screens, due week 8.
Week 8.	Dynpro Screens	Class notes.	<b>Project #7</b> – Programming Dynpro Screens, due week 9.
Week 9.	Using Subroutines and Programming for data transfer using the Recording function.	Chapter 11. Chapter 9.	<b>Project #8</b> – Data Transfer, due week 10.
Week 10.	<b>Exam 2</b>		No lab assignment this week.
Week 11.	Function Modules: Using existing code.	Chapter 12.	<b>Project #9</b> – Function Modules, due week 12.
Week 12.	Logical Databases	Chapter 13.	<b>Project #10</b> – Logical Database, due week 13.
Week 13.	Table Locking and Database updating	Class notes.	<b>Project #11</b> – Making Data Changes, due week 13.
Week 14.	ABAP Objects	Class notes.	<b>Project #12</b> – ABAP Objects, due week 15.
Week 15.	ABAP Objects (cont.) Course review	Class notes.	No lab this week

### Lab Policies

- The SAP GUI is installed on the computers in the ITP labs. In the second week of class I will post the hours of these labs.
- Lab assistants are not familiar with SAP, nor with class assignments, so please don't expect them to be able to help answer questions with regard to the projects.
- **Note:** Before logging off a lab computer, you must ensure that you have either emailed or saved your work created during the lab session. Any work saved to the computer **will be erased** each evening and after restarting the computer. The School of Engineering is not responsible for any work lost.

- Lab Projects:**
- On the second week of class, each of you will receive your own login ID that will provide you with access to the SAP system AND enable you to create ABAP/4 programs.
  - You are strongly encouraged to begin work immediately after the class lecture, in lab while the topic is still fresh in your mind. Attendance will be noted and considered when having difficulty the day before the project is due.
  - You may work together in the lab, sharing programming insights and discoveries; however, each program must be of your own effort. "Duplicate" programs submitted will all receive zero points and a report will be filed with the Office of Student Judicial Affairs.
  - All projects must be completed by the beginning of class on the dates shown on the schedule.
    - Written portions of the projects must be submitted via the class blackboard assignment web page.
    - It is **your** responsibility to also verify that your submitted document is in the class "assignment box" AND that double-clicking on the document opens it up. If you can't see, or open the document you submitted, then neither can the grader!
    - **After the second project, failure to correctly submit projects will result in a 5% penalty.**
    - The programs themselves will be graded directly from the R/3 system and the date and time of last modification will be checked against the due date on the class schedule.

- Lab Projects:**
- **Projects or programs completed after the deadlines will automatically have ½ of the possible points deducted prior to grading.** So, please complete and submit your projects by the beginning of the lectures on the dates indicated above!
  - **No projects will be accepted after 2 weeks** beyond the project's original due date or after the last day of the semester.

**Handling  
Project  
Questions**

1. Re-read the instructions carefully and try referring to: <http://help.sap.com>
2. Review the "Discussion Board" section of the class web site's forum for other students' questions and comments or post a question yourself to begin
3. E-mail the class TA your question, being sure to be clear in your question and detailed in your explanation of the situation. Replies may take some time, since e-mail is really not an efficient method for working a "help desk".
4. And, of course, you're always welcome to stop by my office during my office hours or contact me and arrange for an appointment. Please note: I do not address "project problems" via e-mail. I am happy to discuss the problems with you, and guide you to solving them yourself during my office hours; but my e-mail address is not to be used as a simple "help desk".



**All students must read, understand, and abide by the University Student Conduct Code listed in SCampus, and available at:**

<http://www.usc.edu/student-affairs/SJACS/nonacademicreview.html>

Excerpts taken from *SC Campus Student Guidebook, 04/05*:

§11.00 Behavior Violating University Standards and Appropriate Sanctions

“...individual work will be submitted [by the student], and [it’s the student’s] obligation both to protect one’s own academic work from misuse by others as well as to avoid using another’s work as one’s own.”

§11.11 Plagiarism (Definition)

“The submission of material authored by another person but represented as the student’s own work, whether that material is paraphrased or copied in verbatim or near verbatim form.”

§11.14 Plagiarism (Definition continued)

“Obtaining for oneself, or providing for another person a solution to a homework project or other assignments, or a copy of an exam or exam key without the knowledge and expressed consent of the instructor.”

**Any violation will be immediately reported to the Office of Student Judicial Affairs and Community Standards. The alleged violation will then be reviewed by the board. If the student is determined to be responsible for the violation, appropriate disciplinary action will be determined and then implemented by the University.**