Nova Southeastern University
Graduate School of Computer and Information Sciences

Course Syllabus

MMIS 661: Object-Oriented Applications, 3 credits

Jan 3, 2011 to April 30, 2011, online

Instructor: **Alan Peslak, PH.D. Adjunct Professor**

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Class Location and Format: Online

Class website: http://www.scis.nova.edu/~peslaka/mmis661fa10.pdf

Course Description:

Principles of the object-oriented (OO) paradigm. Application of OO methods in computer information systems. Object-oriented languages and design methods for class definition. Study of the use of OO techniques in applications such as user interfaces, graphics, database systems, visual programming, and hypermedia. Techniques for software reuse. We will be using the Java programming language and Unified Modeling Language (UML) notation to explore object-oriented concepts and techniques in a concrete setting.

Required Textbooks:

Murach's Java SE 6 by Joel Murach and Andrea Steelman, 2007. ISBN 1890774421

The Object-Oriented Approach: Concepts. System Development, and Modeling with UML by John w. Satzinger and Tore U. Orvik, 2001. ISBN 0-619-03390-8

Required Software (for MCIS 661):
Java JDK 1.6. For the programming assignments, you may use the Java development environment of your choice, such as Symantec's Visual Cafe for Java, Borland's JBuilder, Eclipse, or Sun's NetBeans,. Alternatively, you can use the free Java Development Kit (JDK) with any text editor.

For UML assignments, software will be needed for developing UML diagrams. You may use Microsoft Word but the preferred software is a diagramming package such as Microsoft Visio.

Learning Outcomes:

- To understand the concepts and principles of the object-oriented paradigm.
- To gain understanding and experience in analyzing and designing systems using object-oriented methods.
- To gain an appreciation of the use of object-oriented methods in the development of real-world applications.
- To learn the Unified Modeling Language (UML), and to gain experience using this notation for systems analysis and design.
- To appreciate how the principles of the object model inform the Java programming language, and to use this understanding to sharpen your skills in object-oriented programming.

Course Outline:
This course adopts a three-pronged approach:

- We will work on some analysis and design problems, based on methods presented in our textbooks. We will use UML to express analysis and design decisions.
- We will cover concepts and principles of the object model, such as objects and classes; message passing and methods; reusability, composition and inheritance; type systems and polymorphism; design patterns; and application frameworks.
- We will discuss Java programs for two purposes: (a) to implement aspects of designs we develop, and (b) to serve as a concrete setting for concepts and principles of the object model.

Instruction Methods and Tools:

In order to provide a comprehensive instruction set, seven different instruction tools will be used.

Text reading and– Each text presents an excellent and current overview of object-oriented technology. A complete reading of the texts is encouraged. Lecture notes will be posted for both texts. Also supplemental resources will be posted on the class forum.

Lecture notes - Lecture notes will be posted for both texts. Their study is encouraged.

Forum discussion - Allows analysis of real world problems and encourages problem solving skills. Allows asynchronous communication among students. Active postings on the board among students are required and encouraged.

Analytical assignments – Enhance and improve knowledge of the UML methods and object-oriented course material as well as develop specific analytical and writing skills.

Programming Assignments - Specific Java programming assignments will be required to demonstrate knowledge of practical implementation of object-oriented concepts. This will culminate in the final project.

Three-tier Project – Development of a three-tier object oriented project using Java and including object-oriented analysis and UML diagrams will be the capstone of this course.

Assignments:

Assignment 1 **Warm-up**

Murach Chapter 2 Exercise 2-4 (Scrrenprints and explanations of each class)
Chapter 3 Exercise 3-2
Satzinger Chapter 5 Exercises 2, 4, 5

Assignment 2 **UML**

Satzinger Chapter 6 Exercises 1,2
Chapter 7 Exercise 4
Chapter 9 Exercise 7
Chapter 10 Exercise 1

Assignment 3 **Problem Domain Classes**

Murach Chapter 6 Exercise 3 (Include Class diagram and other appropriate UML diagram(s))
Chapter 7 Exercise 1

Assignment 4 **Defining GUI classes**

Murach Chapter 16 Exercise 2
Chapter 17 Exercise 6
Chapter 18 Exercise 1

Assignment 5 **Defining Data Access Classes**

Murach Chapter 20 Exercise 1
Chapter 21 Exercise 1

Project **Three-Tier Project or Draft Journal Article**

There are two choices for the project. The first is an extension and creative application of our object-oriented programming work.

Basic requirements:
Develop a three-tier student information system for a college that includes a Student class, a Student data access class, and appropriate GUI classes. Include a relational database with appropriate Student information. Create a tester program to test the classes and the database. Add a MainMenu, AddStudnet, and FindAndUpdateStudent GUI classes. (Adapted from out-of-print book Object-Oriented Application Development Using Java).

But be creative.
The project will be based on knowledge, creativity, and complexity.
Include class diagrams, use case diagrams, and appropriate sequence diagrams.

The second option is a detailed research paper that can serve as a possible submission to a peer-reviewed journal or IS conference. The topic should be related to the area of object-oriented theory and/or practice and must be a minimum of 20 pages double spaced, standard fonts and margins. More details will be provided.

SCHEDULE

Week ending	Topic	Text Reading Assignment Chapters	Analytical/ Programming BLACKBOARD Submission	Three-tier Project BLACKBOARD Submission
1-8	Basics of Java and UML	M 1-4 S 1		
1-15	UML	S 2-5	Asgn 1	
1-22	UML	S 6-8		
1-29	UML	S 9-10		
2-5				
2-12	OO, Problem Domain Classes and general 3-tier	M 6-7	Asgn 2	
2-19	PDC	M 8		Project Update
3-5			Asgn 3	
3-12	Spring Break			
3-19	GUI Classes	M 16-17		
3-26	GUI Classes	M 18	Asgn 4	
4-2	Data Access Classes	M 19-20		
4-9	Complex DAC	M 21		
4-16			Asgn 5	
4-23	3-Tier Application	Other M		
4-30	Deploying 3-Tier App on Web	Chapters		Final Project Report
			55	45

Asgn = Assignment, D=Doke text, S=Satzinger text

Forum means the assignment is to be posted in the Forums under the proper thread and with the proper heading. BLACKBOARD means the assignment is to be submitted via SCIS BLACKBOARD utility.

Total points are equally divided among assignments.

All assignments are due on the last day of the week noted in the schedule by 11:55 PM Eastern Time

All deadlines are final. Please plan accordingly. Masters level students are expected to be able to meet deadlines. Sufficient notice is given for deadlines for all assignments, therefore no assignments will be accepted after the due date and late submissions will be graded as zero. Extreme hardships and emergencies will be considered on a case-by-case basis. Change in work assignments or work related travel will not be accepted as emergencies.

Assignments are to be handed in through the BLACKBOARD web-based utility or posted to the class forums under the appropriate topic. Forum assignments must have the assignment clearly identified in the subject label. Every submission must have a header that contains your name, usercode, and the assignment number. Each written BLACKBOARD assignment MUST be handed in as ONE submission through BLACKBOARD if possible.

This is important. Generally assignments are expected to be Word documents with embedded charts or screen prints as appropriate. Visio diagrams are also acceptable for UML assignments. For programming assignments, java class files are required but in addition, a Word document with screen prints of output and successful compilation is required.

We will use the Java programming language to present ideas in a concrete setting. Only limited prior knowledge of Java is assumed. If you are relatively new to Java, you should focus more effort on the early chapters of the Doke text and/or consider a supplemental text such as *The Java Programming Language*, by Ken Arnold and James Gosling (Addison-Wesley). Be sure to get the most recent edition. The book is well written and full of short, clean examples that illustrate language semantics and features. The only major shortcoming of this book is that it does not delve deeply into the structure of the language's standard packages. A good two-volume series that does go into this are the *Core Java* books by Gary Cornell and Cay Horstman (Prentice-Hall).

We will also use the Unified Modeling Language (UML) for analysis and design. No prior knowledge of UML is assumed.

There will be weekly reading assignments from our textbook and/or this syllabus.
Solutions to analytical and programming assignments will be posted in the forums, thus it is essential that assignments be handed in on time.

Examinations and Quizzes:
There will be no exams or quizzes. The final project will be the capstone of the course.

Grading Criteria:

A student may not do additional work or repeat an examination to raise a grade.

SCALE

GRADE

	TOTAL PERCENT
A	93.0-100
A-	90.0-92.9
B+	87.0-89.9
B	83.0-86.9
B-	80.0-82.9
C+	77.0-79.9
C	73.0-76.9
C-	70.0-72.9
F	0.0-69.9

Class Rules:

- **Each assignment is due on midnight of the specified due date. BLACKBOARD does not allow postings after the due date. Late assignments will not be accepted. However, partial credit will be given for incomplete assignments submitted on time.**
- **If you have difficulty with an assignment, please post a message in the forum or send me e-mail. The earlier you convey your problem, the more time we'll have to resolve it before the deadline arrives.**

- Mutual respect and courtesy are expected.
- Every effort has been made to prepare this syllabus in final form. Nevertheless, the Professor reserves the right to make changes as may be required to the online version of the course syllabus. The official syllabus will be finalized online on the start date of the course. The online syllabus defines the requirements for this course. Student will be notified of changes by electronic mail.

Policy Paragraphs:

School and University Policies and Procedures:

Students must comply with the policies published in the school's *Graduate Catalog* and the *NSU Student Handbook*, some of which are included or referenced below. The catalog is at http://www.scis.nova.edu/NSS/pdf_documents/Catalog.pdf. The handbook is at http://www.nova.edu/cwis/studentaffairs/forms/ustudenthandbook.pdf.

1. Standards of Academic Integrity For the university-wide policy on academic standards, see the section Code of Student Conduct and Academic Responsibility in the *NSU Student Handbook*. Also see the section Student Misconduct in the GSCIS catalog.
Each student is responsible for maintaining academic integrity and intellectual honesty in his or her academic work. It is the policy of the school that each student must:

- Submit his or her own work, not that of another person
- Not falsify data or records (including admission materials and academic work)
- Not engage in cheating (e.g., giving or receiving help during examinations; acquiring and/or transmitting test questions prior to an examination; or using unauthorized materials, such as notes, during an examination)
- Not receive or give aid on assigned work that requires independent effort
- Properly credit the words or ideas of others according to accepted standards for professional publications (see the next section *Crediting the Words or Ideas of Others*)
- Not use or consult paper writing services, software coding services, or similar services for the purpose of obtaining assistance in the preparation of of materials to be submitted for course assignments or for theses or dissertations.
- Not commit plagiarism (*Merriam-Webster's Collegiate Dictionary* (2004) defines plagiarism as "stealing or passing off ideas or words of another as one's own" and "the use of a created production without crediting the source.") (see *Crediting the Words or Ideas of Others* below)

Crediting the Words or Ideas of Others

When using the exact words of another, quotation marks must be used for short quotations (fewer than 40 words), and block quotation style must be used for longer quotations. In either case, a proper citation must also be provided. *Publication Manual of the American Psychological Association, Fifth Edition,* (2001, pp. 117 and 292) contains standards and examples on quotation methods.

When paraphrasing (summarizing, or rewriting) the words or ideas of another, a proper citation must be provided.

(*Publication Manual of the American Psychological Association, Fifth Edition* (2001) contains standards and examples on citation methods (pp. 207–214) and reference lists (pp. 215–281)). The *New Shorter Oxford English Dictionary* (1993) defines paraphrase as "An expression in other words, usually fuller and clearer, of the sense of a written or spoken passage or text…Express the meaning (of a word, phrase, passage, or work) in other words, usually with the object of clarification…". Changing word order, deleting words, or substituting synonyms is not acceptable paraphrasing—it is plagiarism, even when properly cited. Rather than make changes of this nature, the source should be quoted as written.

Original Work

Assignments, exams, projects, papers, theses, dissertations, etc., must be the original work of the student. Original work may include the thoughts and words of others but such thoughts or words must be identified using quotation marks or indentation and must properly identify the source (see the previous section *Crediting the Words or Ideas of Others*). At all times, students are expected to comply with the school's accepted citation practice and policy.

Work is not original when it has been submitted previously by the author or by anyone else for academic credit. Work is not original when it has been copied or partially copied from any other source, including another student, unless such copying is acknowledged by the person submitting the work for the credit at the time the work is being submitted, or unless copying, sharing, or joint authorship is an express part of the assignment. Exams and tests are original work when no unauthorized aid is given, received, or used before or during the course of the examination, reexamination, and/or remediation.

2. Writing Skills

Students must demonstrate proficiency in the use of the English language. Grammatical errors, spelling errors, and writing that fails to express ideas clearly will affect their grades and the completion of their academic programs. The faculty will not provide remedial help concerning grammatical errors or other writing difficulties. It is the student's responsibility to proofread and edit his or her work which, in both form and content, should be letter-perfect. Work that is not properly edited will be rejected. It is university policy that students must submit their own work, not that of another person. Consequently, they should refrain from using outside editors to redo their work.

OPTIONAL (use all, some, or none of the following):
Several books contain general guidelines for writing. *On Writing Well* (Zinsser, 2006) is an excellent guide to clear, logical, and organized writing. *The Elements of Style* (Strunk and White, 2000) is a compact handbook on the basic principles of composition, grammar, word usage and writing style. The *Publication Manual of the American Psychological Association* (APA) (2001), a comprehensive handbook on writing for publication, addresses editorial style, grammar, and organization. Give particular attention to Chapter 1, Content and Organization of a Manuscript; Chapter 2, Expressing Ideas and Reducing Bias in Language; and Chapter 3, APA Editorial Style. Chapter 2 also has good advice on writing style and grammar. Another excellent handbook on writing for publication is *The Chicago Manual of Style* (2003). The APA manual and the Chicago manual contain guidance on punctuation, spelling, capitalization, abbreviations, quotations, numbers, statistical and mathematical material, tables, figures, footnotes, appendixes, and reference citations in text. Students should use a good dictionary such as *Merriam-Webster's Collegiate Dictionary* (11^{th} ed.).

3. Disabilities and ADA

NSU complies with the American with Disabilities Act (ADA). The university's detailed policy on disabilities is contained in the NSU *Student Handbook.* Student requests for accommodation based on ADA will be considered on an individual basis. Students with disabilities should discuss their needs with their academic advisors before the commencement of classes if possible.

4. Communication by Email

Students must use their NSU email accounts when sending email to faculty and staff and must clearly identify their names and other appropriate information, e.g., course or program. When communicating with students via email, faculty and staff members will send mail only to NSU

email accounts using NSU-recognized usernames. Students who forward their NSU-generated email to other email accounts do so at their own risk. GSCIS uses various course management tools that use private internal email systems. Students enrolled in courses using these tools should check both the private internal email system and NSU's regular email system. NSU offers students web-based email access. Students are encouraged to check their NSU email account and their course management email daily.

5. The Temporary Grade of Incomplete (I)

The temporary grade of Incomplete (I) will be granted only in cases of extreme hardship. Students do not have a right to an incomplete, which may be granted only when there is evidence of just cause. A student desiring an incomplete must submit a written appeal to the course professor at least two weeks prior to the end of the term. In the appeal, the student must: (1) provide a rationale; (2) demonstrate that he/she has been making a sincere effort to complete the assignments during the term; and (3) explain how all the possibilities to complete the assignments on time have been exhausted. Should the course professor agree, an *incomplete contract* will be prepared by the student and signed by both student and professor. The *incomplete contract* must contain a description of the work to be completed and a timetable. The completion period should be the shortest possible. In no case may the completion date extend beyond 30 days from the last day of the term for master's courses or beyond 60 days from the last day of the term for doctoral courses. The *incomplete contract* will accompany the submission of the professor's final grade roster to the program office. The program office will monitor each *incomplete contract*. If a change-of-grade form is not submitted by the scheduled completion date, the grade will be changed automatically from I to F. No student may graduate with an I on his or her record.

6. Grade Policy Regarding Withdrawals

Course withdrawal requests must be submitted to the program office in writing by the student. Requests for withdrawal must be received by the program office by the calendar midpoint of the course (see dates in the academic calendar in the catalog and program brochures or websites). Withdrawals sent by email must be sent from the student's assigned NSU email account. Requests for withdrawal received after 11:59 p.m. EST on the withdrawal deadline date will not be accepted. Failure to attend class or participate in course activities will not automatically drop or withdraw a student from the class or the university. Students who have not withdrawn by the withdrawal deadline will receive letter grades that reflect their performance in the course. When a withdrawal request is approved, the transcript will show a grade of W (*Withdrawn*) for the course. *Students with four withdrawals will be dismissed from the program.* Depending on the date of withdrawal, the student may be eligible for a partial refund (see the appropriate catalog section Refund Policy Regarding Withdrawals).

7. Acceptable Use of Computing Resources

Students must comply with the university's *Policy on Acceptable Use of Computing Resources* (see *NSU Student Handbook*).

8. Academic Progress, Grade Requirements, and Academic Standing

Students must be familiar with the school's policies which are contained in its catalog.

9. Student Research Involving Human Subjects

Students must be familiar with the university's policy (see paragraph in catalog).

10. Responsibility for Payment of Tuition and Fees

Once registered, students are personally responsible for the payment of their tuition and fees. Returned checks, cancelled credit cards, employer or agency refusal to pay, ineligibility for financial aid, and other reasons for non-payment may result in a direct bill to the student, and/or referral to a collection agency.

Payment and refund policies are based on the view that a student registering for a class is reserving a place in that class and that tuition and fees cover the opportunity to secure that place in the class. Since no other person can purchase that place, the student is responsible for the tuition and fees associated with it. Simply not attending does not constitute a reason for non-payment.