Course Material. A textbook is not assigned for this course. We will use online resources and several handouts and videos I have developed for this course. In previous semesters we have used "Modern Systems Analysis and Design," J. A. Hoffer, J. F. George, J. S. Valacich, Prentice Hall. A copy of this book is in the BC lab and available for use while you're in the lab if you want an additional source of information about analysis and design.

Software. Some of the software required for this course is available for you to install on your PC with the Windows operating systems. A Linux or Mac version may also be available. The software used in this course is available in the BC lab (3rd floor) and in the computer classrooms (rooms which are only available during class time or my office hours, if I have scheduled a computer classroom). Software that you can install: MS Project 2013 (available through a license agreement with Microsoft), Oracle SQL Developer (version 3.2.20.09) and Oracle Data Modeler (version 3.3.0-747).

You will receive an email from Microsoft's Dreamspark shortly after the semester begins which will explain how to register and get software for free as a student in a BCIS course. NOTE: This message will go to your NMSU email account. Be sure to check it.

The Oracle software is available at the Oracle web site (links are provided in Canvas) and it is free to download and install. You may have to create an account at Oracle's TechNet site prior to downloading. There is no charge for joining TechNet.

You will use Oracle APEX (Application Express) a great deal the last half of the semester. APEX is a developer tool (also known as a CASE tool) which enables you to build databases and create web-based applications within a short time frame. You must use the database server and APEX provided by me. APEX will work well in most browsers but I recommend Chrome or
Firefox. Accounts and connection information will be provided through Canvas. *(If you want to download Oracle XE for your own use and practice, that's fine. However, you cannot use your individual installation to complete the assignments in this class. They must be done on the server provided.)*

**Course Description.** This course teaches the application of software engineering techniques in the information systems life cycle. There is an emphasis on project management and formal techniques for doing analysis, design, and implementation. Use of various software engineering analysis and design tools and techniques are covered: information gathering for defining system requirements, data modeling with entity-relationship diagrams, process modeling with data flow diagrams or use cases, data dictionaries, and prototyping. The course will also present current topics, such as agile development, extreme programming, rapid application development (RAD), Scrum and the Unified Modeling Language (UML). This course will provide hands-on practice with project management and systems development through exercises in PERT/CPM, user requirements gathering, data and process modeling, and prototyping. Prerequisite: BCIS 222 (or taken concurrently).

**Course Objectives** - The student who completes this course should know:

1. The traditional, RAD (Rapid Application Development) and agile systems development methodologies.
2. Techniques and tools for data and process modeling: entity-relationship diagrams, physical database design, and data flow diagrams.
3. Relational database terminology and design concepts.
4. How to use prototyping in the analysis and design phases of systems development.
5. Project planning: defining the scope, purpose and activities of a project; setting up a project management web page.
6. PERT/CPM project management techniques, including the use of Microsoft Project software.
7. What a CASE (computer-aided systems engineering) tool is and how it is used in software development.

**Examinations.** There will be two exams. The exams will cover material in handouts, online resources, assignments and videos. The second exam is the final exam. It covers the material since the first exam and any material, such as systems modeling, that is studied throughout the semester. Exams will be a combination of multiple choice, short answer, and problems.

If you miss an exam due to illness, work, or a university-sponsored activity, you must provide proper notification to the instructor as soon as possible. If no valid excuse is provided the student will receive a score of zero for the missed exam.

**Individual and Team Exercises and Quizzes.** Teams will be assigned the first day of class. These teams will remain throughout the semester. There will be individual and team exercises given during the first half the semester to enable each student and each team to practice the techniques being taught. Class time will sometimes be given to work on exercises and practice, both individual and team-based.
Individual quizzes will be completed online. No late individual quizzes will be accepted. Team quizzes will be done in class. Everyone on the team gets the team score unless a team member is absent when the team quiz is done.

Individual assignments and quizzes must be completed on your own (see the scholastic dishonesty section below). It is OK to discuss assignments with others in the class but do you own work. It is important that you practice and master the techniques being taught. Most of these will be used throughout the semester so you can learn the techniques and see how to apply them in a development life cycle.

Late assignments may be accepted within 24 hours of the due date and there will be a 20% late penalty. Beyond 24 hours after the due date, assignments will not be accepted. Some assignments will not be accepted late and the assignment information online will indicate this.

**Instructional method.** Instructional material is available to students online and you are responsible for reading material and viewing videos about a topic before it is discussed in class. It is worth repeating that you **must prepare** before coming to class. As noted earlier, class time will be used for individual or group exercises, questions, and further discussion of topics.

**Projects.** You will apply what you learn in this course. The first six to seven weeks of the semester cover the concepts and techniques you'll use in the projects assigned in the last half of the semester.

**Project Web Site:** You will create a project web site for the second and third projects. This web site will contain the project documentation. Prior to these projects, there will be a few exercises, handouts and videos that will explain how to create web pages and post them in your NMSU account so they are available via the Internet.

**First project.** This is a tutorial that introduces Oracle APEX as a RAD tool for database construction and Web application development.

**Individual Project:** There will be an individual project assignment just after mid-semester. This project will give each student practice working as a systems analyst. This project is completed before working with a team on the final project. The individual project requires you to complete a database and Web application prototype in Oracle using APEX, based on project and design documents provided by the instructor. All the material and exercises up to this point in the class help prepare you for this project.

**NOTE:** The individual project must be submitted by the deadline (before the group project begins) and with a "C" or better functionality in order for you to participate in your team for the group project. If your individual project is not completed by the deadline and with the basic required functionality, you will have to do the group project individually, not as a member of a team. The reason for this penalty is to emphasize the importance of each team member demonstrating he/she has certain skills and can contribute significantly to a team effort. The team is not responsible for covering for a non-productive teammate. If you have to work on the final project alone, there will be no other penalty. I'll work with you just as I do with the other teams.
**Group Project:** There will be a group project that begins approximately three weeks before the end of the semester. In addition to learning technical skills in this course, it is important for you to practice these skills while working with colleagues as part of a systems analysis and design team. Being able to work effectively with others on a team project is important and teamwork experience is quite important to future employers. This is something employers mention often when asked what skills they want to students to have when they graduate.

**Peer Evaluation:** At the end of the project, team members will complete confidential peer evaluations. These evaluations will be used in calculating each student's overall score for the project, so it is likely that team members won't receive the same score for their project.

**Exercises and Quizzes** - Unless otherwise stated, assignments and quizzes are assigned as individual work. You must complete these on your own (see the scholastic dishonest section below). It is important that you practice and master the techniques being taught. Most of these will be used throughout the semester so you can learn the techniques and see how to apply them in a development life cycle.

**Graduate Students.** Graduate students will complete an additional component for this course.

**Communication With Instructor.** Discussion threads will be available in Canvas for questions regarding course material. Post questions about assignments and course material in the discussion threads so everyone can benefit from questions and answers. **Do not send individual emails** about course materials and assignments. I will respond as quickly as possible, usually within 24 hours except on Saturdays. For personal questions related to this course, send email through Canvas, NOT regular NMSU email.

I have office hours that can be face-to-face or online. You'll find a hyperlink to Adobe Connect in Canvas for this course. If office hours are scheduled in a computer classroom, we must meet face-to-face.

**Study and Participation.** The nature of this course and its format requires that you stay up-to-date with the schedule and actively participate—read material, ask questions, and complete assignments on time. Begin work on assignments with ample time to complete the work, including posting questions and receiving answers. As this course progresses the amount of time allocated for some assignments will be longer but that means the assignment requires more time to complete. For example, if an assignment is released with a deadline two weeks away, you should begin the assignment right away so that you have time to complete the work on time, including raising questions and overcoming technical issues.

**Email Communications.** Your NMSU email account is the official means of communicating with the university. Information critical to your success at NMSU is delivered to you via this account, and you are expected to follow rules and policies provided to you via this communication method.

Any email from you regarding this course to the instructor should be sent either through the CANVAS course management system.
Please be advised that due to privacy and security concerns, we are unable to respond to emails from or about students that do not originate from within Canvas or an official NMSU email address.

**Notice Concerning Disabilities and Discrimination.** Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) covers issues relating to disability and accommodations. If a student has questions or needs an accommodation in the classroom (all medical information is treated confidentially), contact:

Trudy Luken, Director, Student Accessibility Services (SAS); Corbett Center, Rm. 244
**Phone:** (575) 646-6840  --  **E-mail:** sas@nmsu.edu
**Website:** [www.nmsu.edu/~ssd/](http://www.nmsu.edu/~ssd/)

NMSU policy prohibits discrimination on the basis of age, ancestry, color, disability, gender identity, genetic information, national origin, race, religion, retaliation, serious medical condition, sex, sexual orientation, spousal affiliation and protected veterans status.

Furthermore, Title IX prohibits sex discrimination to include sexual misconduct, sexual violence, sexual harassment and retaliation.

For more information on discrimination issues, Title IX or NMSU’s complaint process contact:
Gerard Nevarez, Executive Director or Agustin Diaz, Associate Director
Office of Institutional Equity (OIE); O’Loughlin House
**Phone:** (575) 646-3635  --  **E-mail:** equity@nmsu.edu
**Website:** [http://www.nmsu.edu/~eeo/](http://www.nmsu.edu/~eeo/)

**Academic and non-academic misconduct.** The Student Code of Conduct defines academic misconduct, non-academic misconduct and the consequences or penalties for each. The Student Code of Conduct is available in the NMSU Student Handbook online: [http://deanofstudents.nmsu.edu/student-handbook/1-student-code-of-conduct/](http://deanofstudents.nmsu.edu/student-handbook/1-student-code-of-conduct/)

Academic misconduct is explained here: [http://deanofstudents.nmsu.edu/student-handbook/1-student-code-of-conduct/3-academic-misconduct.html](http://deanofstudents.nmsu.edu/student-handbook/1-student-code-of-conduct/3-academic-misconduct.html)

**Plagiarism.** Plagiarism is using another person’s work without acknowledgment, making it appear to be one’s own. Intentional and unintentional instances of plagiarism are considered instances of academic misconduct and are subject to disciplinary action such as failure on the assignment, failure of the course or dismissal from the university. The NMSU Library has more information and help on how to avoid plagiarism at [http://lib.nmsu.edu/plagiarism/](http://lib.nmsu.edu/plagiarism/).

**Miscellaneous Policies**

- Although I will try to maintain the class schedule and objectives adjustments are sometimes necessary.
- Office hours: When I have to attend a meeting or other event during my office hours, I will post a message in Canvas. I'm often in my office even when I don't have office hours and you're welcome to call or come by outside of office hours but if you're making a special
trip to campus, please call first to confirm that I'm in my office and that I don't step away and miss you.

**Point Distribution and Grades** - The points possible for this course will be approximately as follows:

<table>
<thead>
<tr>
<th></th>
<th>Weight in Overall Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam 1</td>
<td>15%</td>
</tr>
<tr>
<td>Exam 2</td>
<td>15%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>10%</td>
</tr>
<tr>
<td>Exercises</td>
<td>15%</td>
</tr>
<tr>
<td>1st Project (tutorial)</td>
<td>10%</td>
</tr>
<tr>
<td>2nd Project</td>
<td>15%</td>
</tr>
<tr>
<td>Final Project (including video)</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Grades will be assigned as follows:

- 98% through 100%: A+
- 92% through 97.9%: A
- 90% through 91.9%: A-
- 88% through 89.9%: B+
- 82% through 87.9%: B
- 80% through 81.9%: B-
- 78% through 79.9%: C+
- 72% through 77.9%: C
- 70% through 71.9%: C-
- 60% through 69.9%: D
- below 60%: F