IS 166: SYSTEMS ANALYSIS & DESIGN
S P R I N G   2 0 1 9

COURSE
Class Number: 31912
Number of units: 3
Location: PB 131
Time: Tuesday/Thursday, 4:00 pm – 5:50 pm

INSTRUCTOR
Sasan Rahmatian, Ph.D. (sa-**san**′ ra-**ma**′-ti-yan)
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Office Hours: Tuesday/Thursday, 3:15 – 4:00 pm ……… and other times by special appointment
Consultation Hours: Monday-Friday 9:00 am – 5:00 pm, by email, phone, or video, as appropriate

Please notify me in advance by email if you need to visit me in my office, so I keep that time slot open only for you. Otherwise you may not be able to reach me.

PREREQUISITES
- IS 158. You must have taken this course, completed it and passed it with a grade of C or better. IS 158 may **not** be taken concurrently with IS 166.
- ACCT 4A, 4B.
- Upper-division standing.

COURSE RATIONALE
The development of large-scale, computer-based information systems is comparable in complexity to building nuclear plants, except with the latter there is at least something physical to show as the end product. As an IS major, you need to understand the challenges and opportunities associated with this process because, in one form or other, you will be involved in it. This course aims at providing that understanding. But how is understanding best accomplished? *I hear and I forget; I see and I remember; I do and I understand*. Inspired by this old adage, most of your learning in this course will be anchored to a real-world system project that you will analyze, design, and implement in the MS-Access environment. Despite its deliberately narrow scope, this project will get you caught in the convoluted labyrinth of systems development on an experiential level. As such, this course may as well be entitled *An Appreciation of Systems Development Complexity*. Keep in mind that, much like childbirth, all creative processes have a great deal of effort (and some pain!) associated with them!

There is not enough time to offer a comprehensive coverage of various systems development topics and methodologies. Since database analysis and design issues were already addressed in a prerequisite course, this course will focus primarily on process related issues. The learning will take place as a result of attending the lectures, contributing to class discussion, taking tests, doing conceptual project-related

assignments, implementing the system in the lab in small pieces, putting the pieces together into an integrated system, and presenting it to class.

L I T E R A T U R E
1. Course Packet (Kennel Bookstore)
2. Course website: http://zimmer.csufresno.edu/~sasanr/Courses/IS-166/IS-166.html
3. Any material posted on Blackboard.

In addition, you are strongly advised to buy a book – any book of your choice – that covers ACCESS on an intermediate/advanced level. Since software training books tend to be clones of one another, it hardly matters which book you buy. The cost of the book can be shared by the members of each project team.

PERFORMANCE EVALUATION
40%	Tests (15%, 15%, 10%)
25%	Project
20%	Integrating Experience
15%	Assignments

TESTS
The tests will measure your individual understanding of three topics that are central to this course:
- data flow modeling
- program logic design
- program structure design

PROJECT
The course will involve a real-world systems project that you will analyze, design, and implement in groups. There will be five or six such groups.

The points for the project will be assigned according to the peer evaluation process. Each member of a group will be evaluated by the other members in that group in terms of the criteria described below. These peer evaluations will be the basis on which each student's *overall peer evaluation score* will be computed. This score will then be applied to the number of points the group receives as a whole. For instance, if a team member's overall peer evaluation score is 80%, then that person will receive 80% of the total points awarded to that group's project.

The ideal group member is one with the following profile: He or she attends all group meetings punctually and completely, contributes, takes initiative, carries out his/her share of project work consistently and reliably, does not procrastinate or come up with excuses, and has the desire and ability to teach oneself the technical skills required for completing the project at a high level of quality. Derived from this are the criteria that appear on the Peer Evaluation sheet to be found at the end of this syllabus.

Peer evaluation scores should be assigned confidentially and not discussed within the group. They are due within a day *after* you turn in your project at the time of the final presentation. Those failing to turn in their peer evaluation on time will receive a score of zero for the entire project regardless of the scores assigned to them by their partners.

Although most of the Access knowledge you need to do the project successfully will be taught in class, you will still need to learn some of the advanced features *on your own* in order to put the "bells and whistles" on the application. The mastery of Access is every team member's obligation; it should not be delegated to certain team members. In the real world, you are expected to have the desire and ability to teach yourself new material – especially new software skills – all the time. If you do not possess this desire or ability, you are perhaps in the wrong field.

ASSIGNMENTS

The assignments cover the major design components of your project to assure that your work on the project will progress in the right direction and at the right pace. Some of the assignments are conceptual and will be done in a word-processing environment; others are hands-on and will be done in the lab.

Assignments turned in late will not be accepted because all assignments will be discussed in classes to which they are assigned. Being exposed to a detailed analysis of an assignment and then "doing" that assignment is not fair to other students. **These assignments will be graded on a pass/fail basis.** Your work does not have to be perfect to pass; it needs to show that you have taken the assignment seriously, spent considerable time on it, and that your output is at least 80% correct. At the very minimum, your answer needs to conform to the assignment's requirements (what it is asking you to do); **if your work does not conform to all the stated requirements, it will not be accepted**. If you have to err, you are urged to err on the side of caution and go <u>overboard</u> in achieving excellence and perfection!

All homework will be collected AT THE VERY BEGINNING OF EACH PERIOD. As soon as we start reviewing the first group's work, all homework collection will be FROZEN at that time. No work will be accepted after that.

Only the portion of the work TYPED on paper will be accepted. The hand-written portions of your work will NOT BE ACCEPTED OR GRADED.
Homework stored in an electronic format and projected from the computer onto the screen will NOT BE ACCEPTED even if later printed on paper and turned in.

All your group project work (including group assignments) needs to be done as a <u>group</u>!
The following ways of doing assignments are <u>not</u> acceptable:

X
- Dividing the labor, having each member do a bit and then putting all the pieces together with all the names.
- Assigning an assignment to a single team member who is solely responsible for its contents, and taking turns doing so.

The following ways of doing assignments <u>are</u> acceptable:

√
- Dividing the labor *initially*, and then meeting later (i.e., *physically*!) as a group to discuss, improve, and integrate the work done by each individual member.
- Meeting as a group to do the work, with equal, concurrent contributions.

Remember: Once your name appears on a document, you are responsible for <u>all</u> of its contents! There is no i in we.

Credit will be given for an assignment based on the names appearing on the work turned in. If it is a group's consensus that a certain member did not contribute and therefore choose not to include that person's name on the work turned in, he or she will *not* receive any credit for that assignment. To receive credit, you have to be there and contribute.

All assignments should be typed and turned in with a cover page on which the following information appears:

* assignment number
* group number
* the first name <u>and</u> last name of each contributing group member
* the place where the group met to do the assignment (either a public place or somebody's home)
* The date and time period at which the group met to do the assignment

Any time project work is due ….
- make **two** (2) copies of it,
- turn in 1 copy, and keep the other copy in class in front of you with a red pen/pencil,
- as your, and other groups', works are being discussed in class, one of your team members should be assigned in advance to **record corrections** on it and use that document to correct the digital version later on for inclusion in the overall project documentation,
- the work you turn in, unless it is unacceptable, will **not** be returned to you.

All lab instruction is intended only to familiarize you with Access. They are not meant as examples of good design or of design ideas you should incorporate into your project. After a lab session has taught you how to implement a task in Access, feel free to tweak it in accordance with your own design ideas before actually incorporating it into your project.

INTEGRATING EXPERIENCE
You will be given the requirements for a small but interesting application, and you will be asked to design the database, the data flow diagram, the structure chart, the process logic, and the user interface. Its scope is small enough to be doable in two hours.

This exam is open notes, and open book. You may use any printed material from any website. Use only pencil and eraser. You may not use any electronic devices, such as laptops, PDAs or cell phones.

Policy on Class Attendance
Attendance will be taken at all classes, and you are expected to attend each and every class. You are entitled to **ONLY two** unjustified cuts over the course of the semester. Beyond that, *__you will lose three percentage points for every cut__*, unless the absence is for a legitimate reason, and is fully documented. Make every effort to attend all sessions, as most learning will take place inside class.

Policy on Academic Misconduct
Cheating is the actual/attempted practice of fraudulent/deceptive acts for the purpose of improving one's grade or obtaining course credit; such acts also include assisting another student to do so. Typically, such acts occur in relation to examinations. However, it is the intent of this definition that the term 'cheating' not be limited to examination situations only, but that it include any and all actions by a student that are intended to gain an unearned academic advantage by fraudulent or deceptive means. Plagiarism is a specific form of cheating which consists of the misuse of the published and/or unpublished works of others by misrepresenting the material (i.e., their intellectual property) so used as one's own work. Penalties for cheating and plagiarism range from a 0 or F on a particular assignment, through an F for the course, to expulsion from the University.

The policy on academic misconduct is stated in the university catalog. The "Instructor's Report of Cheating/Plagiarism" form can be found at the very end of this packet. You need to become familiar with this information, and also with the University Honor Code:

> *Members of the CSU Fresno academic community adhere to principles of academic integrity and mutual respect while engaged in university work and related activities. You should:*
> - *understand or seek clarification about expectations for academic integrity in this course (including no cheating, plagiarism and inappropriate collaboration)*
> - *neither give nor receive unauthorized aid on examinations or other course work that is used by the instructor as the basis of grading.*
> - *take responsibility to monitor academic dishonesty in any form and to report it to the instructor or other appropriate official for action.*

It constitutes cheating/plagiarism for students to upload any material from this course (such as exams, their own responses to assignments, and any instructor-provided material) on external document-sharing websites such as CourseHero, or to download from such websites homework done by others and use all or parts of that content verbatim in their own submissions. This behavior, if caught, will be officially reported to the University administration as cheating, and will also result in an automatic grade of "F" in this course.

Grading Scale
A: 90-100%
B: 80-89%
C: 70-79%
D: 60-69%

Your course grade will be calculated strictly based on the components discussed earlier. In effect, you are not *given* a grade; you *earn* your grade. **No special consideration will be given to whether or not you expect to graduate in the near future.**

Miscellaneous Rules
- Interruptions due to late arrivals are extremely distracting. Due to the large amount of material to be covered, we are going to be hard pressed for time. To be able to start every class on time, please come to class a few minutes before the expected starting time.
- Extra-credit assignments are usually irrelevant and counterproductive. You are encouraged to base your performance on the mastery of the mainstream material covered in class.
- INCOMPLETE grades will be given only under the most extenuating circumstances, which ought to be fully documented.
- If you miss a test, please contact me *within 24 hours of the time the class took their test* to make arrangements for taking a make-up test. Otherwise, you will receive a grade of zero for that test.

- If you question the grade received on a test or on work turned in, please go over it with me as soon as you can.
- When speaking in class, please speak loud and clearly so that everyone can hear you. I would like the entire class to benefit from your questions or comments and have a chance to react to them.
- Should you have a disability which may interfere with your performance in this class, please identify yourself to me as well as to the University so that reasonable accommodations for learning and evaluation can be made.
- You are welcome to bring your laptop or tablet to class and use it for academic purposes. You should not use it, under any circumstances, for non-class related activities, such as web surfing, emailing, texting, etc. At times when your undivided attention is required, you will be asked to close your laptop.
- All email messages will be sent to your official CSUF email address. It is important that you keep that account in good shape on a regular basis by deleting spam and other undesired message, so that it does not go "over quota", and will keep receiving valid messages.
- If you drop this course, please let me know at your earliest convenience.

Communication
My preferred channel of communication is e-mail. But if the issue happens to be complex, we can communicate via phone, video or office visit.

When sending me an e-mail, take the time to write it well and type it correctly. Your e-mail to me is a formal means of communication to your professor and should be distinguished from the informal, casual messages you may send your friends in which you punctuate informally, write "u" for "you", etc. The fact that e-mail messages are sent easily through an electronic medium should not be construed as grounds for sending sloppy messages containing typographical and/or grammatical errors.

I respond to email messages Monday-Friday 9 am – 5 pm. Please set up your expectations accordingly when sending me emails. If I respond at other times, consider that a bonus!

N o t e

If you are coming to my office during office hours to ask course-related questions, please drop me an e-mail in advance just in case other students have already made appointments for that same time slot. Your time is too valuable to wait for me.

Finally …
I hope you will enjoy the material selected for you and the way they unfold during the sessions we spend together. If there is anything I can do to make this a more enjoyable educational experience for you, please do not hesitate to let me know.

A Note on Access Download

The version you may download as part of Office 365 is live, and gets constantly updated. It is best if you download Access 2016 as part of Office 2016 ("Install Office apps") rather than as part of Office 365.

Panel 1: APRIL, SHOULDN'T YOU BE DOING YOUR HOMEWORK?

IT'S DONE.

Panel 2: YOU HAD AN ENTIRE ESSAY TO WRITE. HOW COULD IT BE DONE?

I GOT IT OFF THE INTERNET.

CLICK

Panel 3: YOU JUST LOOKED AT A FEW SITES AND PRINTED OFF WHAT YOU NEEDED?

BINGO!

Panel 4: I'M SORRY, YOUNG LADY—BUT THIS IS NO GAME.

Panel 5: YOUR TEACHER ISN'T GOING TO ACCEPT THIS, APRIL. AN ESSAY IS SOMETHING YOU RESEARCH. YOU'RE SUPPOSED TO READ AND WRITE DOWN WHAT YOU FIND OUT!

AN ESSAY SHOULD BE IN YOUR OWN WORDS!

Panel 6: THIS IS ALL STOLEN! SOMEONE ELSE WROTE THIS. SOMEONE ELSE DID ALL THE WORK!

MOM, EVERYONE PRINTS STUFF OFF THE NET. IT'S NO BIG DEAL!

Panel 7: THIS IS ABOUT THE AMAZON RIVER. HERE'S THE ATLAS. HOW MANY MAJOR TRIBUTARIES CONVERGE TO FORM THE AMAZON RIVER?

MOM!!

Panel 8: DO YOU KNOW THE ANSWER?

I'LL LOOK IT UP LATER.

WORLD ATLAS

Panel 9: TURN OFF THAT TELEVISION, APRIL. I AM GOING TO SHOW YOU HOW TO WRITE AN ESSAY!

GROAN...

CLICK

Panel 10: YOU HAVE SOME GOOD MATERIAL HERE. READ IT, AND TELL ME WHAT THE MOST IMPORTANT POINTS ARE.

BUT...THERE'S SO MANY PAGES!

Panel 11: EXACTLY! THAT'S WHAT THIS EXERCISE IS ALL ABOUT. IF YOU DON'T READ, YOU DON'T LEARN—SO GET STARTED.

Panel 12: I WAS JUST TOLD TO DO AN ESSAY. I WASN'T TOLD TO **LEARN** ANYTHING!

Peer Evaluation

*Within a day after you turn in your project at the time of the final presentation, please email me (**sasanr@csufresno.edu**) an evaluation of each partner along the following lines. Send in a **single** email for all the group members, rather than a separate email for each. Do not send in your evaluation as a MS-Word attachment either. Peer evaluation scores should be assigned confidentially and not discussed within the group. Those failing to turn in their peer evaluation in time will receive a score of zero for the entire project regardless of the scores assigned to them by their partners. Make sure you reproduce the following sentences in full for each partner being evaluated.*

For each group partner and each statement appearing below, assign a rating to that person based on the following scale:
5   strongly agree
4   agree
3   undecided
2   somewhat disagree
1   strongly disagree

Partner Name: _____

_____ Attended all the required group meetings.
_____ Was punctual in attending meetings and stayed for the entire duration of meetings.
_____ Respected other team members and was a source of support and positive vibes.
_____ Took ownership of the project by doing whatever needed to be done without necessarily having to be asked/told.
_____ Was reachable when needed by the group, and was responsive to requests for help (replied to emails on time, returned phone messages, etc.).
_____ Completed assigned tasks on time and with high quality.
_____ Had the desire as well as the ability to learn (self-teach) technical MS-Access material on their own as the situation demanded.
_____ …………………..………<insert your own criterion here> ………………..…………

_____ Average Score

Divide the above average by 5 and show as a percent. For example, an average score of 3.8 would become 3.8/5 = .76 = 76%. This becomes the Peer Evaluation Score, to be shown below:

_____ Peer Evaluation Score

Use the Peer Evaluation Calculator below to calculate the various peer evaluation scores:

http://zimmer.csufresno.edu/~sasanr/Courses/IS-166/peer-evaluation-calculator.xls

Sample Peer Evaluation Email

Partner Name: Jane Doe

__5__ Attended all the required group meetings.
__4__ Was punctual in attending meetings and stayed for the entire duration of meetings.
__5__ Respected other team members and was a source of support and positive vibes.
__3__ Took ownership of the project by doing whatever needed to be done without necessarily having to be asked/told.
__3__ Was reachable when needed by the group, and was responsive to requests for help (replied to emails on time, returned messages, etc.).
__5__ Completed assigned tasks on time and with high quality.
__2__ Had the desire as well as the ability to learn (self-teach) technical MS-Access material on their own as the situation demanded.

3.86 Average Score

77% Peer Evaluation Score

Partner Name: John Doe

__4__ Attended all the required group meetings.
__3__ Was punctual in attending meetings and stayed for the entire duration of meetings.
__5__ Respected other team members and was a source of support and positive vibes.
__3__ Took ownership of the project by doing whatever needed to be done without necessarily having to be asked/told.
__1__ Was reachable when needed by the group, and was responsive to requests for help (replied to emails on time, returned messages, etc.).
__3__ Completed assigned tasks on time and with high quality.
__5__ Had the desire as well as the ability to learn (self-teach) technical MS-Access material on their own as the situation demanded.
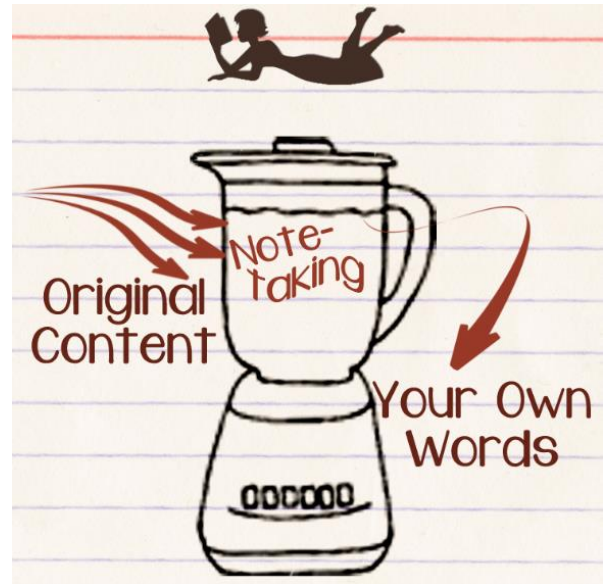
3.43 Average Score

69% Peer Evaluation Score

Note-Taking

Simple equations:

You take notes = You remember the material = You learn = You pass the course with a high grade

You do NOT take notes = You forget the material = You do NOT learn = You do NOT pass the course

The 5 Rs
of Notetaking

Record: During the lecture, write all meaningful information legibly.

Reduce: After the lecture, write a summary of the ideas and facts using key words as cue words.

Recite: Recite all the information in your own words without looking at our notes or the text.

Reflect: Think about your own opinions and ideas. Raise questions and record original ideas

Review: Before reading new material, take 10 minutes to review your older notes. Skim over the main ideas and details.

COURSE SCHEDULE

All *italicized* page numbers in parentheses refer to pages in this course packet. Certain pages from the course packet have deliberately not been referenced, but will be discussed in class.
Some assignments are based on readings; others are standalone, relying on your common sense, business sense, past experience, and sense of logic.

> Assignments and readings for a class may run on from one page to the next. Make sure you always continue reading on to the following page. If you don't, and thus miss some assignments or readings, your excuse will <u>not</u> be accepted.

1. January 17
Introduction
An appreciation of problem modeling
Five or six groups are to be formed. Group members should have compatible schedules and agree on at least one regular weekly meeting time/place.

assignment number

1

2. January 22
Lecture: Fact Finding
Individual Assignment Due: Breaking Down Software Development Roles
The article at http://zimmer.csufresno.edu/~sasanr/Teaching-Material/SAD/breaking%20down%20software%20development%20roles.pdf discusses 10 roles. You will be assigned one of those roles. Read it carefully, think about it, and on one page explain (in your own words) what that role entails/involves as though you were an expert in that role. You will be called on in class to talk about the role and explain it to others in simple language. When that happens, you will not be reading from what you have written. So **understand** and **internalize** your role!

3. January 24
Finalize group formation; turn in your **Meeting Plan**
Project Client Interview
In-class group activity: Finalize and consolidate project requirements in narrative form while translating them into a database design. Nothing is to be turned in.

4. January 29
Lecture: Data Flow Diagrams

Required Reading: Acme Fashion Supplies *(C1-C9)*

> ### Meeting Plan
>
> *Group Members:* _____
>
> *Weekly Meeting Time:* _____
>
> *Weekly Meeting Place* _____

5. January 31
Project Database Design

2

Assignment Due: The conceptual DB design of the project, similar to the relationships diagram in Access. Use whatever means you are familiar with to show
1. The various tables
2. The relationships among the tables
3. All the fields in each table (including primary and foreign keys)

*__on a single__* page (i.e., the page following the cover page).

> **Any time project work is due ….**
> - make **two** (2) copies of it,
> - turn in 1 copy, and keep the other copy in front of you with a red pen/pencil,
> - as your, and other groups', works are being discussed in class, one of your team members will **record corrections** on it and use that document to correct the digital version later on,
> - the work you turn in, unless it is unacceptable, will **not** be returned to you.

Your diagram should look like the one appearing below, except that it will not be done in Access (you can do it in Word, Visio, or any other program), and the symbols for showing one and many may differ.

A Note on Justification
When sharing your project work with class, if you cannot justify and defend your ideas as reflected in your work, your work will NOT be accepted. **If you created it, you must be able to defend it, or the authorship of your work will be questionable.**
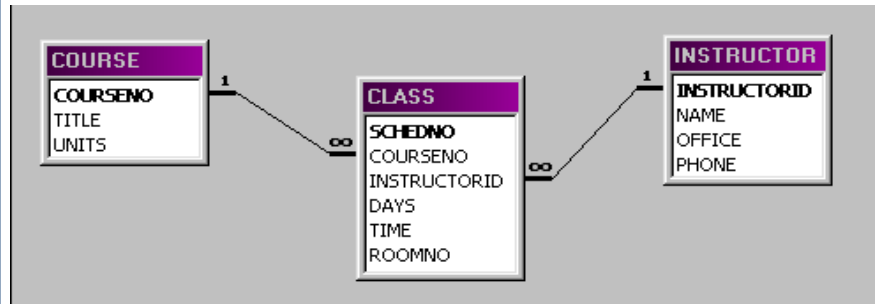
The third page should be the *Quality Control Checklist* in which all the boxes are manually checked (√) by you. The reason they are checked is not that you are fond of checking boxes randomly! The reason is that you have carefully assured that your database design conforms to them! That is what the √ means! **Do *not* do this work in Access yet.** You are in design mode here, whereas Access is for the implementation phase. If you do it in Access, it would be difficult to make changes to it later. Be prepared to explain and justify your design to class in terms of how it meets the user requirements.

6. February 5
Lab: Project database implementation in Access
For all lab sessions, we will first meet in the regular classroom to go over the instructions. You will then be given a week to do it and turn it in. We will not be going to a room called "lab". The lab may be your home, apartment, or Starbucks!

7. February 7
Project groups will be posted in Blackboard to facilitate virtual project collaboration.

Assignment Due: Data flow diagrams for the following processes:

- Calculate-quote: Receiving the customer-id (of an existing customer), order-taker-id, job description, and resource requirements (estimated quantity of each required material and estimated number of hours of each required artist) from the order-taker, and calculating the quote while reading/updating the proper tables. Do not worry about signing up a new customer; that is the job of another process, not this one. The Calculate-quote module will treat all customers as existing. This process does not directly interact with any customers; the only "user" is the order-taker.
- Update-job-status: Bringing up a pending job and changing its status to either *accepted* or *rejected*. The trick lies in **how** a pending job is retrieved!
- Complete-job: Bringing up an accepted job, changing its status to *completed*, and entering/storing actual resources (material/labor).
- Produce the customer-type percent report. This report shows each type of customer and the percent of customers belonging to that type.

Please note:

> ➢ Each of the above is a SINGLE process, to be shown as a single circle. Do NOT break each of the above into smaller processes (circles).
> ➢ For each process, make sure you show all the data stores interacting with it, as well as the nature of that interaction (what data is read by what process from what data store, and what data is updated in what data store as the outcome of what process).
> ➢ Make sure your table names and field names are consistent with your earlier database design.
> ➢ Keep in mind that the next step is going to be process specification: Specifying the step-by-step logic within each process. Resist the temptation to draw a flowchart (i.e., to think procedurally).
> ➢ All composite data flows (consisting of several fields) should be explained in an accompanying data dictionary.
> ➢ Draw the diagram in any drawing program or in any program with a drawing capability, such as MS Word.
> ➢ Confine yourself to one process per page. Hence, show each process on a separate page.

8. February 12
Test 1: Data Flow Diagram
Assignment Due: Lab from a week ago (3)

Test 1
- Given a narrative process description and a flawed DFD representation of it, identify/correct the flaws.
- Given a narrative process description, draw a DFD for it.

9. February 14
Test 1 Grading
Lecture: Process Specification I

**10. February 19**
Lecture: Process Specification II
(5) **Individual** Assignment Due: Read
- Pseudocode *(D3-D6)*
- Structured Program Theorem *(D7)*

to fully grasp the six basic computer operations and the Structure Theorem. Then:
1. Explain what a control structure is. The assignment is NOT "explain the three control structures." Do not make any reference to the three specific control structures. Explain the general concept. This is a difficult task requiring thinking. Therefore … think! Use an analogy if that helps.
2. Explain the Structure Theorem *in your own language* in such a way that an ***intelligent junior high student*** would comprehend it. Do not copy/paste.
3. Consider the software program that runs the operations of an ATM. From the workings of (i.e., your external interaction with) the ATM, you can logically deduce certain conclusions about the internal workings of this program. Give **two** examples from this software program for **each** of the following control structures:
   a. sequence
   b. selection
   c. repetition
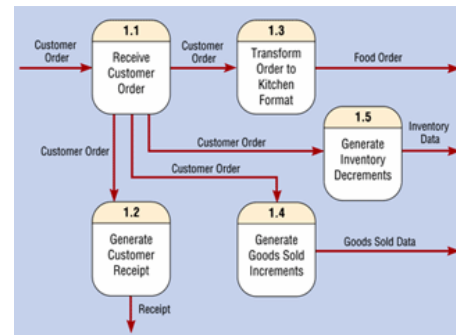
11. February 21
Lecture: Process Specification III
Required Reading: Decision Table *(D30-D31)*
Optional Reading: A History of Decision Tables *(D32-D34)*

12. February 26
Lecture: Process Specification IV – providing insights/guidelines for writing project logic

(6) **Individual** Assignment Due: Aging   *(D24a)*

(7) **Individual** Assignment Due: Judging   *(D25)*

> Turn in these assignments on separate pages.

13. February 28
Project Logic
Required Reading: Hard coding *(D41)*

(8) Assignment Due: Structured English for produce-a-quote, complete-job, produce- customer-type-percent-report processes. Do not hard code any data, such as customer types. More customer types may be added (or existing customer types may be deleted) in the future. So treat customer type as a variable. Your work will not be accepted if you hard code customer type. Make sure you read/digest the contents of the above reading.

14. March 5
Test 2: Process Specification

> ### Test 2
> - Given I/O specifications of a process, figure out and describe its plain English, and Structured English, logic.
> - Given a narrative process description, structure that narrative into Structured English and draw the DFD for it.
> - Given a narrative process description, structure that narrative into a decision table and draw the DFD for it.

15. March 7
Test 2 Grading
(9) Lab: Implement the produce-a-quote module in Access – part I ➔ due in a week
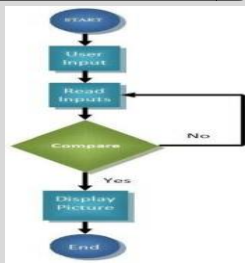
16. March 12
(10) **Individual** Assignment Due: Describing A Structure Chart *(E1)*

Lecture: Structure Chart, Action Diagram – part I

17. March 14
Assignment Due: Lab from a week ago (9)

Lecture: Structure Chart, Action Diagram – part II
Required Reading:
   A. Listen to the Music *(E41)*
   B. Management Forum: Hiring the Best
      http://www.drdobbs.com/management-forum-hiring-the-best/184415690
   C. Modularity: upgrading to the next generation design architecture
      http://www.connected.org/media/modular.html

(11) **Individual** Assignment Due:
Read articles B and C above, identify a total of 5 insights (from both articles combined, not each) that you found most interesting, and explain in your own words what those points are and why you found them interesting. You will be called on in class to talk about the role and explain it to others in simple

language. When that happens, you will not be reading from what you have written. So **<u>understand</u>** and **<u>internalize</u>** the contents!

(12) **Individual** Assignment Due: Piano Tuners Estimate*(E42)*

Turn in these assignments on separate pages.

(13) Lab: Implement the produce-a-quote module in Access – part II ➔ due in a week

18. March 19
Project Structure Chart

(14) Assignment Due: Structure Chart for the entire project; skip all the passed parameters and flags. Go beyond the transaction processing part to include updating master files and producing reports. If a process is not shown on this chart, it will not be part of your system. Design with a view towards maintainability, i.e., the system being easy to expand when, in the future, many more transactions and reports are added.

Be careful **<u>not</u>** to go too low in constructing your structure chart. Each module must be considered as a program with <u>at least a few</u> lines of code in it. If you have a module with a single line of code in it (example: "Get Customer Name"), you have gone too low. Think of the structure chart as a corporate organization chart, and of each module (box) as describing an organizational title/role. An organization chart **<u>does not show</u> how** specific tasks are performed, it shows **what** is done.

19. March 21
Test 3: Structure Chart

Assignment Due: Lab from a week ago

(13)

Test 3
- Given a narrative process description and module names, draw the structure chart using those modules (Legos).
- Given a narrative process description, draw the action diagram for it.
- Given a narrative process description and the correct structure chart for it, draw/name all the passed parameters and write logic for designated modules.

20. March 26
Test 3 Grading
Lecture: Interface Design I

(15) **Individual** Assignment Due: Read
- Knowledge Navigator *(F1)*
- The Relationship Between Business and Higher Education *(F2-F7)*

and find a video on youtube entitled "Knowledge Navigator" (it's about 5:34 in duration). Watch this video. Based on the video and the readings, write a one-page essay about ten attributes/characteristics of the ideal computer inspired by all this. Number them 1 thru 10. In your essay refer to specific examples from Knowledge Navigator that were the sources of your inspiration.

Turn in these two assignments on two separate pages.

(16) **Individual** Assignment Due: Identify 30 user interfaces in your car. Include both
- ➢ Mechanical and informational interfaces
- ➢ Internal (you inside the car) and external (you outside the car) interfaces
- ➢ Input (you telling the car) and output (the car telling you) elements

Select <u>two</u> elements from the above list that you consider flawed and in need of improvement. For each, write a paragraph discussing its shortcomings and offering your concept of the ideal (yet technically feasible) design as if part of a focus group created by automobile manufacturers to improve product design.

21. March 28

Lecture: Interface Design II (including Interface Navigation Chart)

(17) **Individual** Assignment Due: User-Interface Design for Medical Informatics – A Case Study of Kaiser Permanente http://zimmer.csufresno.edu/~sasanr/Teaching-Material/SAD/User-Interface-Design/kaiser-interface-design.pdf

      A. In a single paragraph summarize the case in your own words. What is the story being told here?

      B. Identify and discuss the five most important things you learned about user-interface design from this article. You will be called on in class to talk about the role and explain it to others in simple language. When that happens, you will not be reading from what you have written. So **understand** and **internalize** the contents!

22. April 2

Lecture: Interface Design III

(18) **Individual** Assignment Due: User-Interface Critique – 1 *(F42)*

(19) **Individual** Assignment Due: User-Interface Critique – 2 *(F43)*

      Turn in on 3 <u>separate</u> pages

(20) Assignment Due: Project Interface Navigation Chart.

Required readings:
- You Can't Manage What You Don't Measure *(F68-F69)*
- Key Performance Indicators *(F70-F71)*

23. April 4

In-Class Review:
- Scoring Spreadsheet
- General Format of Evaluation Data

(21) Assignment Due: Report Design *(F72-F73)*

24. April 9

Free time to work at home on the simulation of the Integrating Experience (explained under April 11).

25. April 11

(22) Lab: Project master files, update-job-status, complete-job modules. ➔ due in 2 weeks

Review and simulation of the Integrating Experience

    As preparation for this class, spend two hours (with absolutely no interruptions) on the Sample Integrating Experience ➔ *(H1-H9)*

This sample exam is VERY SIMILAR to the real Integrating Experience.

In this session, I will go over the sample and show you HOW TO THINK about it – the kind of thinking that you will be able to use at the real integrating experience too. But if you do not struggle with the sample version in advance, you will NOT appreciate what I have to teach you, and will not do well on the real exam.

26. April 23
Integrating Experience ➔ <mark>**in PB 194, starting at 3:45 pm, until 5:45 pm**</mark>
This exam is open notes and open book. You may use any printed material from any website. Use only pencil and eraser. You may not use any electronic devices, such as laptops, tablets or cell phones.

27. April 25
Assignment Due: Lab from 2 weeks ago (22)

Class grading of the Integrating Experience

Lecture: Software Testing + application to project

28. April 30
Lecture: Object-Oriented Systems Development

29. May 2
Office Conferences: Project walk-through. I will open your database (from inside BB) to run its various modules. By this date, **you are expected to have ALL 6 of your master files and ALL 3 of your transactions in perfect working order via a series of user-driven menus.**

30. May 7
Office Conferences (continued)

May 16 ("Final Examination"): 5:45-7:45 PM
Project Presentations

Due at 5:45 PM sharp: Final project for ALL groups.
This includes the Access database along with complete online documentation according to the "Project Deliverables" requirements. You will not turn in any hard copy (printed material). Each group will run a standard set of test data through each application. Do not require the user to enter any user-id or passwords to access your application. Turn in your database on a USB drive. **Clearly mark your group number on it.**

Important Note: Your work will be collected at the very beginning of the session at exactly 5:45 PM. If you turn it in late – no matter how late -- your project will receive only partial credit.

Your work will not be returned. Please make a copy of it for your own records before you turn it in, and make sure it has no files on it that are unrelated to this course.

Due within 24 hours of this session: Peer Evaluation emails (read pages 8, 9 of this syllabus)

Because of unexpected software variances (due to MS-Access version; screen resolution; settings, etc), **it is all right to run the system off your own laptop when presenting it to class to avoid unpleasant surprises.**

Please do not ask – in person or via email – for your course grade to be sent to you. Access your grade through PeopleSoft (http://my.csufresno.edu)

1. Do **NOT** switch back and forth between different versions of Access (such as 2010, 2013, 2016) when creating your system. This will cause totally unexpected distortions, anomalies, and corruptions to your database and all the objects associated with it (queries, forms, reports, macros). Choose one version and stick to it throughout the semester.
2. When going back to an earlier phase of your work to change something, this may unintentionally change some other part of the system and adversely affect the whole project. Keep validating that everything works.