COSC 2470.001: COBOL PROGRAMMING

Fall 2012
Course Syllabus

Course Information:

Instructor: Professor Binkerd
Office: CI 320
Office Hours: TBA
Phone: (361) 825-2397
Email: cbinkerd@sci.tamucc.edu
                  Carol.Binkerd@tamucc.edu
Course Time: M, 2:00-3:15   W, 2:00-5:20
Location: ST 107, CI 226

Textbooks:

(Make sure you get the pamphlet that is a mini-manual)

Supplies:

Flash drive, 2-3 folders, $ on Sand Dollar ID card

References:

None

Course Description:

A concentrated study of the COBOL language as applied to fundamental business computing problems and other data management applications

Prerequisites:

COSC 1435

Student Outcomes:

1. Be able to design and implement a structured program using file layouts, print charts, program descriptions, pseudocode and hierarchical structure charts.
2. Be able to understand and effectively use COBOL to implement a solution to a business-
related problem.
3. Be able to effectively use the interactive features in COBOL including screen design and
definition.
4. Be able to understand and effectively use the mathematical operations available in
COBOL.
5. Be able to understand and effectively use tables and arrays in COBOL, including the
built-in search algorithms.
6. Be able to understand and effectively use subprograms and subroutines in COBOL.
7. Be able to understand and effectively implement data validation in both batch and
interactive programs.

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Tentative Agenda. TBA via email
From the textbook, students should complete all reading, “Checkpoint” questions and “Review Questions” before the class
meeting that will cover those topics.

(Modifications to the schedule will be made as needed. Expect to see these via email &/or in class. Hopefully, we will be
able to move more quickly through the material than is listed below, allowing more time for review.)

**COBOL Schedule**- subject to change. Information provided either via email or in class.

Week #1
======
    Lab #1 assigned; intro to COBOL, compiler

Week #2
======
    1-dim table intro; input load, print
    Lab #2 assigned, COBOL subprogram intro

    COBOL design example; structure chart, rec layout, print…
    COBOL syntax: need to bring to class insert in textbook
    Arithmetic
    **Demo lab #1**

Week #3
======
    Review for exam #1

    Design for lab #2 due; trade with partner

Week #4
======
    data val concepts
    Hard-coded tables, search verb
    Lab #3 assigned
Exam #1

Week #5

Exam #2 review

Demo lab #2

Week #6

Exam #2 review

One and two-dim tables
Lab #4 assigned

Week #7

two-dim tables

Search verb, indexes vs. subscripts

Week #8

review for exam #2

Exam #2

Week #9

exam 3 review

Demo lab #3

Week #10

Subprograms

Week #11

Exam #3 review: One-dimensional tables

Exam #3 review: Two-dimensional tables
Week #12
========
Exam #3 review: Hard-coded tables, subprograms, searching

Exam #3

Week #13
========
Questions on lab #4

Final Exam review

Week #14
========
Demo Lab #4/Correct

Final Exam review

Week #15
========
Grade conferences

Final Exam: TBA

Course Grades:

* Exams (3) - 50% Comprehensive Final – 25% (replaces lowest test grade) Lab Assignments and * - 25%
*Conduct & Pop Quizzes (*professional behavior & appropriate conduct, attendance & participation, community service, and so on).

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Excellent</td>
<td>90-100%</td>
</tr>
<tr>
<td>B</td>
<td>Good</td>
<td>80-89</td>
</tr>
<tr>
<td>C</td>
<td>Average</td>
<td>70-79</td>
</tr>
<tr>
<td>D</td>
<td>Passing</td>
<td>60-69</td>
</tr>
<tr>
<td>F*</td>
<td>Failure</td>
<td>below 60%</td>
</tr>
</tbody>
</table>

*Misuse (illegal/unethical) of any computer account will result in the student failing this course.
**10 points (for each set of infractions) will be deducted from the final average for unprofessional behavior.
See section on Attendance and Conduct.
*If you feel that there is an error in the grade that you receive, you must notify the professor before the end of the next semester. Otherwise, the grade will stand and will not be changed.

Class Policies:

. Attendance and Student Conduct: Possible ramifications have been listed below. **Indicates that other ramifications may occur.

Absences. The student is required to attend class and lab. If the student cannot attend class/lab that day, it is the student’s responsibility to contact another class member to obtain hand-outs and information about the content that was
Professional Behavior, Good Manners and Work Skills

Students are expected to have good manners, show respect for themselves and others, and not engage in any behaviors that are disruptive or disrespectful to others. Insubordination and unprofessional conduct including sexual harassment, use of inappropriate language &/or gestures, creating a hostile environment, and so on will not be tolerated. Students who cannot conduct themselves properly will fail the course, and may be referred for counseling, requested to leave the classroom, and other**. If you have any questions about what constitutes inappropriate behavior, language and so on, it is your responsibility to make and attend an appointment during the professor’s office hours.

Students are required to be on time to class/lab. Violation of this policy will result in the student not receiving hand-outs, and possibly in having the student requested to leave the class/lab, and other**. The clock in the classroom/lab (or my watch) will be used to determine the correct time. If a student is late, the student is not to enter the classroom/lab disrupting the class. If there is a break when the student can enter without disrupting the class/lab, the professor will open the door admitting late students.

A student will be considered to be on time if the student has already obtained a copy of that day’s hand-outs and is seated and ready to begin class. Walking into the classroom at the minute that the class begins, is not being on time.

Students may not have headphones, laptops, pagers, cell phones, (and so on) out during class. Students must turn off all pagers, cell phones, listening devices… before entering the classroom/lab and keep them turned off during class/lab. Violation of this policy may result in the article being confiscated and it will be returned to the student on the day of the final exam.

Students are expected to speak while the professor or a recognized student is speaking. Violation of this policy may result in the student being requested to leave the class/lab for the day or a longer period of time, and other**. If a student wants to be recognized to ask a pertinent question, he/she should raise his/her hand and wait until the professor calls upon him/her.

Students are not to use class time to discuss personal issues. If a student has a personal issue, he/she should make an appointment with the professor to discuss this during office hours.

Unprofessional, inappropriate behaviors will lead to the student’s final average being deducted 10 points, (a letter grade) for each set of occurrence. ** For each set of 5 disruptive, rude, disrespectful, non-productive infractions, the student’s final average will be deducted 10 points. Examples of disruptive behaviors are entering the classroom/lab late, speaking when the professor or another student is speaking, allowing the pager or cell to emit noise during class. Therefore, it is possible for a student to fail the course, even if he/she has a passing average on exams and labs. So, if you are late one day, speak while the professor is speaking three times in one class period on the second day, and on the third day, have your cell phone go off, you will have accrued 5 infractions, and lose 10 points off your semester average.

Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums including classrooms, electronic classrooms, labs, discussion groups, field trips and so on.

Cheating. Students are expected to produce original work. Plagiarism and cheating are not acceptable. Violation of this policy may result in all students involved receiving a 0% on the assignment and/or failing the course. And so on.**

General but Important Stuff

Students should expect to spend a minimum of 2-3 hours outside class for every hour in class. So, for this class, outside study time should be a minimum of 12 hours per week.

Students are expected to begin a lab assignment immediately. Do not procrastinate.

Students are expected to be prepared for class. This includes being on time, having required materials ready, having reading and writing assignments completed before class begins. The professor will not assign specific chapters or pages to read from the textbook. Students are expected to read the related chapters (or pages) that correspond to the topics on the tentative agenda before the topics are covered in class.

Students are expected to discuss dropping the class with the professor during office hours. The student is often not clear about his/her current standing in the class. One bad grade is not fatal. Also, the student often feels that he/she is the only one who is confused when the majority of students feel the same way.

In addition to learning the course content, the student is expected to learn professional behavior that will be appropriate in the workplace. Once employed, you will be expected to arrive on time for work, have projects and presentations prepared by the required completion date. In this field, you will often be required to work with teams. Also, if you repeatedly engage in unprofessional behavior, you will be fired. So, a part of your education is developing strong workplace skills.

Resources
Students are expected to seek assistance from the computer science programming lab assistants before coming to the professor. The programming lab assistants are located on the third floor of the CI building. Get familiar with this location and sign-in whenever you seek assistance.

Students are assumed to be proficient in the following: note-taking, time-management, study skills, test-taking skills, impulse control, anger management, interpersonal communication. If a student needs assistance in developing or enhancing these skills, he/she should make an appointment with the counseling center immediately since these skills take time to learn.

Also, if the student has language difficulties, poor comprehension skills and/or special needs, the student should contact the Student Disabilities Office.

Another resource the student should use for math, writing and so on is the TLC.

Lab Assignments:

Labs will be submitted as follows. In the right-hand pocket of the folder will be, in this order: the assignment/cover sheet, print chart, structure chart, pseudocode, flowcharts and a hard copy of the source code. In the left-hand pocket will be a CD/DVD with ONLY the input/output file(s) for the lab assignment at the root level. Make sure that the front of the folder has a label with the following information in this order:

- Your name
- Day and time that your lab meets
- The class and section in which you are enrolled

Failure to correctly submit lab assignments will result in their not being graded. Labs must compile, and have thorough and complete documentation or they will not be graded. In other words, your grade will be 0%.

Late assignments will be accepted within 24 hours of the due date and will lose 10% of the possible points. The highest grade normally assigned is A/95%. Once all assignments have been graded, no further assignments will be accepted even if the submission is within the 24-hour period. A student can earn extra points on a lab assignment by participating in various activities. As a member of the university community, students should contribute to the community through service activities. Service activities include such things as aiding in retention and recruitment activities, giving class presentations, mentoring and tutoring others. You must receive written permission to use an activity as extra-credit points prior to the activity. Please see me during office hours.

Suggestion: Always submit your lab assignment at least 48 hours before the actual due date. Assignments are always accepted early. You may hand them directly to the professor or slide the assignment under the professor’s office door or request that an administrative assistant in CI 301 place it in my mailbox.

Grading is as follows:

- A+ 98
- A 95
- A- 90
- B+ 88
- B 85
- B- 80
- C+ 78
- C 75
- C- 70
- D+ 68
- D 65
- D- 60
- F 50 or lower

Assignments will be returned (during class) as soon as possible. If you think you submitted a lab but do not receive one when the labs are returned, OR you feel there is a mistake in the grade, you must email the professor within 24 hours of that graded lab assignment being returned. You must make an appointment and confer with the professor about this lab within one week of its being returned. Failure to do so will result in the original grade standing.

Graded lab assignments are not recorded. The student must keep them in a folder in order by date. These assignments must be attached in the center of the folder. You must include the cover sheet and the hard copy of the source code for each lab assignment. Folders will be collected periodically and grades recorded at that time. If the student does not submit a folder, loses a graded assignment, has assignments in the wrong order; the student will not receive credit.

Extra-Credit/Make-up for Assignments, Quizzes, Exams:

Availability: Only students who consistently display professional behavior are eligible.

Quizzes: No make-up or extra-credit will be given for pop quizzes. If a student is absent, late to class or behaves inappropriately that class day, the quiz grade will be a 0 (zero).

Exams: There is no extra-credit on exams. If you feel that the exam grade is incorrect, you must email the professor within 48 hours of being notified that the exams have been graded. Within 10 days, you must make an appointment and confer with the professor about the discrepancy. Failure to do so will result in the original grade standing.

Labs: With the professor’s written approval, the student may complete an extra-credit lab assignment to replace one assignment. Students must write complete program specifications and present them to the professor during office hours. The professor may approve or deny any assignment presented.

Exams: No make-up exams will be given. During the semester, the student will
take 3 exams. The comprehensive final will replace the lowest exam grade, even if it is lower than the exam grade.

_________ **Final Exam:** No make-up exams will be given without a doctor’s excuse explaining the student’s medical emergency. Make-up exams will be different from the regular exam and, hence, may be more difficult. Students should expect that make-up exams will be comprehensive.

_________ **Computer Accounts:**

Misuse (illegal or unethical) of any computer account will result in the student receiving an F in this class.

Students must immediately obtain an account on penguin. The student will receive many directions and information via email. The student is responsible for checking email on a regular basis. (If you do not know how to use email, learn ASAP.) The professor may (or may not) add alternative email addresses to the mailing list. But, the professor will not know if other servers are down and the student will still be held responsible for the email that has been sent on penguin.

_________ **Disability Policy:** The computer science program complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. If you need accommodations, please make an appointment with the professor ASAP. Bring with you to the appointment your accommodation letter from the TAMU-CC Students with Disabilities Office.

**Disabilities.** The American with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides a reasonable accommodation of their disability. If you believe you have a disability requiring an accommodation, please contact the Disability Services Office at (361) 825-5816 or visit the office in Driftwood 101.

_________ **In Conclusion:** I have read and understand this syllabus as well as the University Guide for Computer Ethics. I agree to comply with the conditions stipulated in both documents. I have a clear understanding of ethical and legal use of my computer accounts and will use them legally and ethically.

Please sign below:

___________________________________________

________________________

(signature) (date)

**COBOL Lab Assignments**

(May change as needed.)

Changes will be announced in class &/or sent via email.

**Lab #1 – outcomes #2,3,5**

The purpose of lab #1 is for the student to:

- learn the 4 different divisions of a COBOL program,
- Become familiar with the compiler
- Be introduced to tables (arrays)

Lab #1 is comprised of 3 programs.

Program #1: (1A): read and print using files

Program #2: (1B): read and print using interactive input or output.

Program #3: revision of program #1. input load (from a file) a 1-dimensional array; then print the contents of the array to a file
Lab #2- outcomes #1, 2,4,5,6

All team members must assist in developing:
  - Input rec layout
  - Print chart: use appropriate editing
  - Designing a test file

Input record: all records will have the following fields:

<table>
<thead>
<tr>
<th>Columns</th>
<th>Description of data</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>Unused</td>
<td></td>
</tr>
<tr>
<td>3-11</td>
<td>Employee identification number</td>
<td>Alphanumeric</td>
</tr>
<tr>
<td>12-29</td>
<td>Name of the employee</td>
<td>Alphanumeric</td>
</tr>
<tr>
<td>30-34</td>
<td>Hours employee has worked that pay period</td>
<td>Numeric, 2 decimal places</td>
</tr>
</tbody>
</table>
| 35-39   | Number of overtime hours employee has worked that pay period | Numeric, 2 decimal places  
Overtime pay = 1.5 times regular pay |
| 40-45   | Unused                                     |                                               |
| 46-49   | Amount employee is paid per hour           | Numeric, 2 decimal places                     |
| 50-56   | Unused                                     |                                               |
| 60-63   | Number that identifies the department within which the employee works |                                               |
| 64-70   | Unused                                     |                                               |
| 71      | Code that indicates to which shift the employee is assigned | 1- no shift differential  
2- 10% extra pay  
3- 15% extra pay |
| 72-80   |                                            |                                               |

**Lab 2A:** Input load and sort a one-dimensional array.
  - load a one-dimensional table
  - subprogram: sort on plant code; within each plant, sort on department number
  - write sorted table to a file

**Lab 2B:** Compute and print employee pay.
  - compute each employee’s pay
  - print plant code, department number employee name and pay

Team member #1: writes the structure chart and all flowcharts for lab 2A.  
Writes the actual code and gets it to compile and execute for Lab 2B.

Team member #2: writes the structure chart and all flowcharts for Lab 2B.  
Writes the actual code and gets it to compile and execute for lab 2A.
Lab #3- outcomes #1,2,3,5,6,7

All team members will be involved in all aspects.

Documentation required:
Lab 3A: screen design for input/output
Lab 3B: structure chart, print chart, flowcharts

<table>
<thead>
<tr>
<th>Fields to be validated:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of the employee</td>
<td>Presence, left-justified</td>
</tr>
<tr>
<td>Regular hours</td>
<td>Presence, numeric, 0-40</td>
</tr>
<tr>
<td>Hourly rate</td>
<td>Presence, numeric, valid: 8.50-45.99, 67.89, 125.99</td>
</tr>
<tr>
<td>Code for shift</td>
<td>Presence, numeric, 1-3</td>
</tr>
<tr>
<td>Department number</td>
<td>See table below</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Departmental Information</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Description</td>
</tr>
<tr>
<td>1000</td>
<td>Administration</td>
</tr>
<tr>
<td>1100</td>
<td>Purchasing</td>
</tr>
<tr>
<td>1200</td>
<td>Human Resources</td>
</tr>
<tr>
<td>1300</td>
<td>Advertising</td>
</tr>
<tr>
<td>1350</td>
<td>Public Relations</td>
</tr>
<tr>
<td>1900</td>
<td>Training</td>
</tr>
<tr>
<td>2000</td>
<td>Research and Development</td>
</tr>
<tr>
<td>3000</td>
<td>Finance</td>
</tr>
<tr>
<td>3500</td>
<td>Information Technology</td>
</tr>
<tr>
<td>4000</td>
<td>Manufacturing</td>
</tr>
</tbody>
</table>

Lab #3A: Data Validation: Interactive program. Use 88 levels for all validation checks.

Lab #3B: Data Validation: Files. Use table look-up when appropriate for data val checks.
Write all valid records to one file, no editing
Write all invalid records to a different file, include appropriate error messages.

Lab #4- outcomes #1,2,3,4,5,6,7

Lab #4A: Data validation.
Open file #1.
Validate all records.
Write records with all valid data to file #2, no editing.
Write all records with invalid data to file #3, with appropriate error messages.
**Lab #4B: Sort Valid Data.**

Open file #2.
Input load a one-dimensional table.
Call a subprogram to sort the data: plant code; departments within plants.
Write the sorted file to file #4, no editing.

**Documentation:**

All documentation is required for the program below.
All team members must be involved in each component of this program.
It is acceptable for one team member to complete the design, a different member writes the actual code and does the testing.

**Lab #4C: Two-dimensional table handling, Hard-coded tables, Control Break, Computing.**

Using file #4, input load a two-dimensional table.
Using a separate subprogram for the following:
- Using a table search, find and load the name of the department. If not found, enter an appropriate remark.
  - Calculate and store in the table, employee pay
  - Calculate and store in the table department totals and averages:
    - Totals: number of employees per department, total paid to all employees
    - Avg: average paid per employee
  o Calculate and store in the plant totals and averages:
    - Totals: total departments per plant, total paid to all employees in that plant
    - Avg: average spent per department within that plant

Print all plant and departmental information stored in the table.