COBOL Programming, COSC 2470
Department of Engineering and Computing Sciences
Fall 2017

A. COURSE INFORMATION
Course number/section: COSC 2470.001, COSC 2470.201
Class meeting time: TR, 11:00-12:15, 12:30-1:20
Class location: IH 267, CI 226

B. INSTRUCTOR INFORMATION
Instructor: Professor Carol Binkerd
Office location: CI 320
Office hours: MW, 11:00-1:00 ; TR, 10:00-11:00
(changes announced via class or email)
Telephone: 361-825-2397
e-mail: carol.binkerd@tamucc.edu
Appointments: Please email. Periodically during the semester, especially during high peak times, I will post sign-up sheets outside my office. You may simply write your name in the most convenient time slot.

C. COURSE DESCRIPTION
Catalog Course Description
A concentrated study of the COBOL language as applied to fundamental business computing problems and other data management applications

D. PREREQUISITES AND COREQUISITES
Prerequisites: COSC 1435, Intro to Problem Solving.
Corequisites: None

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES
Required Textbook(s)
COBOL for the 21st Century, by Stern, Stern, and Lay. (or a similar textbook)
(Make sure you get the pamphlet that is a mini-manual)

Supplies
Several paper folders with pockets and brats in center
Money on Sand Dollar ID card
CD/DVD

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT
Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that
describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, students should be able to:

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

G. INSTRUCTIONAL METHODS AND ACTIVITIES

This is not a lecture-based course. Attendance is mandatory as participation is critical. Most activities cannot be recreated outside the classroom.

- Questions from students regarding clarification about lab assignments/tasks
- Labs
- Exams
- Small group activities
- Discussion
- Lectures

H. MAJOR COURSE REQUIREMENTS AND GRADING

If needed, due to extenuating circumstances, these requirements and grading may be modified.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exams (3)</td>
<td>75%</td>
</tr>
<tr>
<td>Labs (4-8)</td>
<td>25%</td>
</tr>
<tr>
<td>Comprehensive Final</td>
<td>Replaces lowest exam grade</td>
</tr>
</tbody>
</table>

2. COURSE CONTENT/SCHEDULE Note: Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams
shown are directly related to the Student Learning Outcomes described in Section F.

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

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.)

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

Sample COBOL Lab Assignments

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>
<tr>
<td>35-39</td>
<td>Number of overtime hours employee has</td>
<td>Numeric, 2 decimal places</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Field Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>worked that pay period</td>
<td>Overtime pay = 1.5 times regular pay</td>
</tr>
<tr>
<td>40-45</td>
<td>Unused</td>
</tr>
<tr>
<td>46-49</td>
<td>Amount employee is paid per hour (Numeric, 2 decimal places)</td>
</tr>
<tr>
<td>50-56</td>
<td>Unused</td>
</tr>
<tr>
<td>60-63</td>
<td>Number that identifies the department within which the employee works</td>
</tr>
<tr>
<td>64-70</td>
<td>Unused</td>
</tr>
<tr>
<td>71</td>
<td>Code that indicates to which shift the employee is assigned (1: no shift differential, 2: 10% extra pay, 3: 15% extra pay)</td>
</tr>
<tr>
<td>72-80</td>
<td></td>
</tr>
</tbody>
</table>

**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

**Fields to be validated:**

<table>
<thead>
<tr>
<th>Field</th>
<th>Notes</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>
<tr>
<td>Departmental Information</td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Number</strong></td>
<td><strong>Description</strong></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
- 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.

3. **COURSE POLICIES**

   **Attendance/Tardiness**
   Many of the assignments will involve class and group participation. Therefore, attendance is mandatory. **For each class that a student is late or does not attend, the final semester average will be docked 2 points.**

   The student is required to attend class. If the student cannot attend class that day, it is the student’s responsibility to contact another class member to obtain hand-outs and information about the content that was covered. Additionally, it is the student’s responsibility to learn the material that was covered. Do not contact the professor.

   **Absence Documentation.** If you have documentation that you feel provides a valid reason for class absences, you must submit your documentation to the Office for Student Success and Engagement. This office will then notify all your professors. Depending upon the class grading policies, you may or may not be permitted to complete work missed due to these absences.

   **Alcohol/Tobacco/Smoking of any kind.**
   Not permitted.

   **Late Work and Make-up Exams**
   **Late assignments/exams are not permitted. Please submit before the due date.**

**Extra Credit**

**Availability:** Only students who consistently display professional behavior are eligible.
Cell Phone Use
Not permitted without permission. Students will receive one group warning.

Laptop Use
Not permitted without permission.

Food in Class
No food or drinks allowed.

Missed Exam
N/A

Participation
Mandatory.

Others

Assignments: If not submitted correctly, if you do not follow the directions, your submission will not be reviewed. In other words, you will receive 0% credit.

Attendance and Student Conduct:
Absences. The student is required to attend class. If the student cannot attend class that day, it is the student’s responsibility to contact another class member to obtain hand-outs and information about the content that was covered. Additionally, it is the student’s responsibility to learn the material that was covered. Do not contact the professor.

Many of the assignments will involve class and group participation. Therefore, attendance is mandatory. For each class that a student is late or does not attend, the final semester average will be docked 2 points.

Contact. All contact will be via the student’s Islander email account. Please check often

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. Violation of this policy will result in the student not receiving hand-outs, not receiving credit for that day’s activities, and possibly in having the student requested to leave the class/lab, and other*. The clock/computer in the classroom/lab
(or my watch) will be used to determine the correct time.

A student will be considered to be on time if the student has already obtained a copy of that day’s hand-outs, is seated and ready to begin class with required materials on the desk/computer, has submitted assignments due (and so on) before the time class begins. Walking into the classroom at the minute that the class begins, is not being on time.

Students may not use headphones, laptops, cell phones (and so on) during class. Students must silence all cell phones (and so on) before entering the classroom/lab and keep them silenced 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 not 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.

Each occurrence of unprofessional, inappropriate behaviors will lead to the student’s final average being deducted points 2 points. Examples of disruptive behaviors are entering the classroom/lab late, speaking when the professor or another student is speaking, allowing the cell to emit noise during class, re-entering the class, forcing the instructor/TA to remove food/drinks, and so on. Therefore, it is possible for a student to fail the course, even if he/she has a passing average on graded materials. 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 ring, you will have accrued 5 infractions. 10 points will be subtracted from your semester average.

If a developmental plan has been developed, and you do not comply to those conditions, you will fail the course no matter what your semester average may be.

Profanity (aka vulgarity, swearing, cussing) is never appropriate and creates a hostile work environment. You will fail this course if you use profanity.

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.
Any of the activities described in this section violate the rules stipulated in the above paragraph. In most cases the individual will be instructed to leave the classroom. The individual will be required to schedule a meeting with the professor during office hours, sign a professional development plan before the student is allowed to return to the classroom. Failure to meet the developmental plan goals, will result in an immediate failing grade.

If the individual refuses to leave, the University police will be contacted to escort the individual from the classroom. The individual will automatically fail the course, not matter what the individual’s grade.

**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 assignments immediately. Do not procrastinate.

_______ Students are expected to be prepared for class. This includes being on time, having required materials ready, having reading and written 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.

_______ If you feel your assignment was not graded correctly, you must email your concern within 24 hours of receiving the graded assignment. Then, you must set and attend a meeting within one week of receiving the assignment.

**Resources**

_______ 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 academic
success center.

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

4. COLLEGE AND UNIVERSITY POLICIES

- Academic Integrity (University)
  University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.

- Classroom/Professional Behavior
  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, etc.

- Statement of Civility
  Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

- Deadline for Dropping a Course with a Grade of W (University)
  I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please
consult with your academic advisor, the Financial Aid Office, and me, before you decide to drop this course. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Please consult the Academic Calendar (http://www.tamucc.edu/academics/calendar/) for the last day to drop a course.

- **Grade Appeals (College of Science and Engineering)**
  As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://www.tamucc.edu/provost/university_rules/index.html, and the College of Science and Engineering Grade Appeals webpage at http://sci.tamucc.edu/students/GradeAppeal.html. For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

- **Disability Services**
  The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116. Accommodation may necessitate some grading modifications. For example, many assignments require that students hand-write responses; but, spelling, punctuation, sentence structure and so on are not graded. However, since the computer automatically corrects much/most of this, students requesting the use of the computer, will be graded on those aspects.

  If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

  http://disabilityservices.tamucc.edu/

- **Statement of Academic Continuity**
In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

On the first day of class, please supply an additional email contact. I will allow you to simply add an additional email address to the group mailing list that I have designed for this class.

5. OTHER INFORMATION
   • Academic Advising
     The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

GENERAL DISCLAIMER
I reserve the right to modify the information, schedule, assignments, deadlines, grading and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods or via group emails.