BCIS 3630 Dr. GUYNES SPRING 2018
TUESDAY SECTION [JAN – 2018 version]
GRADER EMAIL: mckee.java16@gmail.com
COURSE WEBSITE

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TEXTBOOK:
Starting Out with JAVA - CONTROL STRUCTURES THRU OBJECTS
6th Edition, by Tony Gaddis   **ISBN-13: 978-0133957051**

buy at bookstore or at Amazon *Do not get the 'Electronic' copy as you will need to write notes in the textbook.*

COURSE OBJECTIVES:

This course is an introduction to business computer programming and design in a corporate environment. The primary focus is on the information systems function in support of corporate activities. Students will learn business problem solving using JAVA PROGRAMMING in a microcomputer environment.

JAVA TOPICS COVERED

JAVA program types, creating an application, applets, syntax, variables, literals and identifiers, methods, expressions, print, println. primitive data types, arithmetic operators, final, string class, dialog boxes, joptionpane, scope, scanner class methods, , decision structures, if-else, relational operators, nested ifs, logical operators, precedence, switch and the case structure,   printf method, selection, exception handling, try/catch, repetition, formatting, loops, while loop, nested loop, methods, passing arguments, local variables, classes, instance fields, constructors, overloading methods and constructors, scope of instance fields, packages, import statements, iteration, instance, string arrays, arrays of objects, arrays, loops, external classes, table/arrays, arraylist class

Do not miss class any of the first 3 weeks or you will be 'HOPELESSLY LOST'.

Hints for PC installation of JAVA

[if you have a MAC install as you normally install software]

Be CERTAIN to install JAVA in:

C:\Program Files\Java

Do not install it anywhere else !!!!!!!!!!!!!!!!!!!!

If you mess up - uninstall it - and reinstall it.

CLICK BELOW TO DOWNLOAD AND INSTALL JAVA

http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html

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REMEMBER - BE CERTAIN THAT YOU   download and install Java   ONLY   in :

C:\Program Files\Java

If you wish, you **may use** any old jdk1.7.0_01 up, instead of jdk1.8.0_152

NEXT set the "Path"

Open Control Panel on your Windows Computer - [Start--->Control Panel]

Click the "System"

Click the "advanced system settings"

Click the "Environment Variables" button near the bottom of the box

In the "System variables" window, look for a variable named "Path"

Path tells software programs such as JGrasp where to find the "JAVA" executable file. Path variables are separated by a ' ; '.

Click on the "Path" variable under "System variables" and click Edit

Scroll to the bottom of the window and type the following :

" ;C:\Program Files\Java\jdk1.8.0_152\bin;   "

Please be very careful that you add the text to the End of the existing information that you see, and be sure that you type the " ; "   along with the rest of the information stated above.

 Click OK

Next - set the CLASSPATH .

IF the "CLASSPATH" variable ALREADY EXISTS do the following:

Click on the "CLASSPATH" [as you did with Path] and click Edit

Scroll to the bottom of the window and type the following :

" ;C:\Program Files\Java\jdk1.8.0_152\lib;   "

Please be very careful that you add the text to the end of the existing information that you see, and be sure that you type the " ; "   along with the rest of the information stated above.

Click OK

IF the "CLASSPATH" variable DOES NOT EXIST do the following:

Click the New button below the "System variables" dialog box

Type "CLASSPATH" in the Variable name field

Type the following in the Variable value field:

" C:\Program Files\Java\jdk1.8.0_152\lib;   "

Click OK, OK, OK

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For PC or MAC

CLICK THE LINK BELOW TO DOWNLOAD AND INSTALL THE **JGRASP   IDE** program WHICH WE WILL USE TO RUN ALL OF OUR JAVA PROGRAMS:

http://www.jgrasp.org/

JGRASP software basics

1. Open the .java file you want to compile, so you can run it or debug it for logic errors.

2. Click the 'Toggle line numbers' ICON to turn on line numbering.

3. Click the 'Compile file' ICON to check for syntax errors. [fix any errors you find]

4a. When you have NO syntax errors, click the 'Run application for current file' ICON.

5a. If you still have a LOGIC error, set a breakpoint on the line where you want to start

debugging and then click the'Run debugger on current file' ICON.

ALL HOMEWORK PROBLEMS FROM THE TEXTBOOK ARE TO BE TURNED IN ONLY TO THE GRADER [PROBLEMS 1 THRU 9]

ALL ONLINE WEB ASSIGNMENTS ARE TO BE TURNED IN ONLY TO ME [WEB SESSIONS A THRU F]

EXAM ONE WEB HINTS AND EXAM TWO WEB HINTS ARE TO BE TURNED IN ONLY TO ME

THE TAKE-HOME FINAL IS TO BE TURNED IN ONLY TO ME

THE OPTIONAL EXTRA CREDIT PROBLEM IS TO BE TURNED IN ONLY TO ME

ALL WORK IS TO BE SUBMITTED BY EMAIL

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SYLLABUS

JAN   16   THIS IS A **CRITICAL FULL 3 HOUR LECTURE** – DO NOT MISS THIS CLASS OR YOU WILL BE BEHIND AS THERE IS A **WEB SESSION NEXT WEEK AND NO LECTURE**

In-Class Lecture over Gaddis Chapters 1 and 2

1. Downloading and installing JAVA JDK
2. Setting PATH and CLASSPATH variables
3. INSTALLING JGRASP FOR DEBUGING

23   **Online Web Session A due**
Not accepted after THUR 1-25
and work on Problem ONE

30   In-Class Lecture over Gaddis chapter 3   **Problem ONE due BY today**
Not accepted after THUR 2-1

FEB   6   **Online Web Session B due**
Not accepted after THUR 2-8
and work on problems TWO & THREE

13   In-Class Lecture over Gaddis chapter 4   **Problem TWO due BY today**
Not accepted after THUR 2-15

20   **Online Web Session C due**
Not accepted after THUR 2-22   **Problem THREE due BY today**
and work on problem FOUR   **Not accepted after THUR 2-22**

EXAM ONE WEB HINTS ARE DUE THIS WEEK
NOT ACCEPTED AFTER MONDAY THE 26th due to REVIEW the next day

27   In-Class Lecture over Gaddis chapter 5
And Review for EXAM ONE

MAR   6   **Online Web Session D due**
Not accepted after THUR 3-8   **Problem FOUR due BY today**
and work on problem FIVE   **Not accepted afterTHUR 3-8**

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20	In-class **EXAM ONE** GADDIS CH. 1, 2, 3, 4	Problem FIVE due BY today Not accepted after THUR 3-22
27	In-Class Lecture over Gaddis chapter 6	
APRIL 3	Online Web Session E due Not accepted after THUR 4-5 and work on problems SIX & SEVEN	Problem SIX due BY today Not accepted after THUR 4-5
10	In-Class Lecture over Gaddis chapter 7 In-Class Lecture over Gaddis chapter 8	Problem SEVEN due BY today Not accepted after THUR 4-12

turn in take home final **no later than** midnight tonight the 10th you should finish it during lecture today [the 10th] as we will be covering that material from chapter 8 in lecture!!

_____

17	Online Web Session F due Not accepted after THUR 4-19 and work on Problem NINE and work on the _**OPTIONAL EXTRA CREDIT PROBLEM**_	Problem EIGHT due BY today Not accepted after THUR 4-19

EXAM TWO WEB HINTS ARE DUE THIS WEEK
NOT ACCEPTED AFTER MONDAY THE 23rd due to REVIEW the next day

24	In-Class EXAM TWO Review	Problem NINE due BY today Not accepted after THUR 4-26

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MAY 1	In-class **EXAM TWO** GADDIS CH. 5, 6, 7 and 8 & more questions on IF'S & LOOP'S	

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FINAL ACCEPTANCE DATES FOR ASSIGNMENTS

Online Web Session A	Not accepted after 1-25
Problem ONE	Not accepted after 2-1
Online Web Session B	Not accepted after 2-8
Problem TWO	Not accepted after 2-15
Online Web Session C	Not accepted after 2-22
Problem THREE	Not accepted after 2-22

EXAM ONE WEB HINTS   NOT ACCEPTED AFTER **MONDAY** 2- 26

Online Web Session D	Not accepted after 3-8
Problem FOUR	Not accepted after 3-8
Problem FIVE	Not accepted after 3-22
Online Web Session E	Not accepted after 4-5
Problem SIX	Not accepted after 4-5

take home final **no later than** midnight **TUESDAY** 4-10

Problem SEVEN	Not accepted after 4-12
Online Web Session F	Not accepted after 4-19
Problem EIGHT	Not accepted after 4-19

EXAM TWO WEB HINTS NOT ACCEPTED AFTER   **MONDAY**   4-23

Problem NINE	Not accepted after 4-26

*OPTIONAL EXTRA CREDIT PROBLEM DEADLINE IS **SUNDAY** APRIL 29TH*

HOMEWORK ASSIGNMENTS

Point Distribution for Assignments

PROBLEM ONE	ch 2	5
PROBLEM TWO	ch 3	5
PROBLEM THREE	ch 3	5
PROBLEM FOUR	ch 4	10
PROBLEM FIVE	ch 5	15
PROBLEM SIX	ch 5	15
PROBLEM SEVEN	ch 6	15
PROBLEM EIGHT	ch 6	15
PROBLEM NINE	ch 7	10
TAKE HOME FINAL	**CH 8**	**05**
TOTAL		100

OPTIONAL EXTRA CREDIT from ch 7 is worth   10 [EXTRA CREDIT POINTS]

IMPORTANT: The OPTIONAL Extra Credit Problem is worth 10 extra credit points and you must solve it by YOURSELF without help from ANYONE. Try to solve it by yourself if you want to earn the 10 points. That means no help from ME or YOUR TUTOR/GRADER or ANY OF THE LAB TUTORS. That also means you cannot get help from any of your CLASSMATES.

If you do cheat and copy someone's work, I will flunk BOTH of you. You will both receive a semester grade of F for the course.

They are sharp enough to catch you, so please do not try it, the 10 points are not worth it.

OPTIONAL EXTRA CREDIT PROBLEM
MUST BE TO DR. GUYNES [not the grader]
By midnight SUNDAY APRIL 29TH in order to receive credit

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NO MAKE-UP EXAMS WILL BE GIVEN DURING THE SEMESTER.

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Grading System

EXAM ONE	**225 points**	**in class exam**
EXAM TWO	**225 points**	**in class exam**
WEB ASSIGNMENT	**50 points**	**on-line work**
HOMEWORK & TAKE-HOME	**100 points**	
TOTAL	**600 points**	

If you complete THE OPTIONAL EXTRA CREDIT PROBLEM, I add 10 points to your total points

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Please take care of personal business before an exam starts

I WILL GIVE A TWO PART EXAM, YOU MUST TURN IN PART ONE, TAKE A SHORT BREAK, AND THEN PICK UP AND BEGIN PART TWO. [Each part will typically be 50 minutes or less]

If for any reason, you leave the classroom, I will grade only what you have done to that point ON THAT PART. You cannot come back and finish a PART that you have previously started.

If for any reason, you leave the classroom, I will grade only what you have done to that point. You cannot come back and finish the exam.

Again, please take care of personal business before an exam starts

JAVA ASSIGNMENTS FOR BCIS 3630

PROBLEM ONE - 5 points From Gad chapter 2:

Work thru the examples in the chapter and then:

Do programming challenges 1, 5, 7, 10 and 15

A.   In order to get credit for the **SALES TAX problem [#7]** at the end of Gaddis chapter 2, you must use **JOPTIONPANE** to input the amount of a purchase.

B.   In order to get credit for the **TEST AVERAGE problem [#10]** at the end of Gaddis chapter 2, you must use **SCANNER** to input the grades.

PROBLEM TWO - 5 points From Gad chapter 3:

Work thru the examples in the chapter and then:

Do programming challenges 1, 4, 8

[Use the Switch statement to solve 1, use the IF statement to solve 4 and 8]

PROBLEM THREE - 5 points From Gad chapter 3:

Work thru the examples in the chapter and then:

Do programming challenges 13, 15 and 16

[Use char and switch in 13, use IF in 15, solve 16 however you wish]

PROBLEM FOUR   - 10 points From Gad chapter 4:

Work thru the examples in the chapter and then:

Do programming challenges 1, 2, 7 and 16

Use 'while' in one of them and 'for' in another, use either in the others

PROBLEM FIVE - 15 points From Gad chapter 5

 Work thru the examples in the chapter and then:

Do programming challenges 2 and 3

Hints for chapter 5 problems 2 and 3

Problem 2 - FIRST write the entire program without using methods by inputting wholesale cost and markup percentage and then computing the retail price. Then print the retail price. NOW RUN IT

SECOND modify the above 'perfect' program by moving the computation of retail price to a method named 'calculateRetail' This method gets sent the cost and markup from the main method and returns the retail price to the main method. Print the retail price from the main method.
THE METHOD YOU WRITE ONLY COMPUTES THE RETAIL PRICE

USE PAGE 295 AS AN EXAMPLE –study lines 29, 31, 34, 37

Problem 3 - FIRST open the AreaRectangle.java program from the chapter code folder that you downloaded.

SECOND assuming that you use **Scanner** [and not JOptionPane] all you have to do is import Scanner and then add the 4 methods to the AreaRectangle.java program

One method asks for the length – use Scanner

One method asks for the width – use Scanner

One method asks for the area [length times width] simple calculation

One method asks you to print length, width and area
[hint: Use System.out.println]

USE PAGE 284-285 AND 295 AS EXAMPLES

PROBLEM SIX - 15 points From Gad chapter 5

Work thru the examples in the chapter and then:

Do programming challenges 7 and 9

PROBLEM SEVEN   - 15 points From Gad chapter 6:

Work thru the examples in the chapter and then:

Do programming challenges 3 and 5

For challenge 5, study 'constructors' in chapter 6

PROBLEM EIGHT - 15 points From Gad chapter 6:

Work thru the examples in the chapter and then:

Do programming challenges 1 and 4

For these 2 challenges study entering the data in ch 6.

PROBLEM NINE - 10 POINTS From Gad chapter 7

Read pages 409 thru 430 and 476 thru middle of 483
Then write the 2 following programs.

From Gaddis **chapter 7**: **Write the 2 following array programs**.

These **are not** challenges in the textbook

The **FIRST** , **a standard array programming assignment,   is from pp. 405-435**

This is a simple array program which **does not use** an "external class & demo program"
If you wish, you may break it down into methods, but that is not required.

a. Set up 4 arrays which each hold 6 employee's data:
   int[ ] empid
   int[ ] hours
   double[ ] rate
   double[ ] wages

 b. Set up loops to load the empid, hours and rate arrays

 c. - Set up a loop to calculate values for the wages array.
       TAKE OVERTIME [hours > 40], INTO CONSIDERATION,
       thru the use of the IF statement
       [overtime is time and a half as usual]

 d. Set up a loop to print the empid and wages for each employee

[2nd problem is on the next page]

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The **SECOND** ,   an arraylist programming assignment, is from 474-483

Write an ArrayList program that:

1. Creates a list of 5 automobile names that you make up and then retrieves those 5 names and displays all of them.

2. Adds Mercedes at position 3 of the array and then retrieves the names and displays all of them.

3. Replaces the fourth car with a BMW and then retrieves the names and displays all of them.

4. Removes the second car and then retrieves the names and displays all of them.

That is all there is to it.

OPTIONAL EXTRA CREDIT PROBLEM

This is an optional way to earn an extra 10 points using **chapter 7** do the following:

FIRST - Write a "Payroll class" that uses the following fields as arrays

empid   int[ ] which contains the following 6 id numbers:
                         [1234, 2345, 3456, 4567, 5678, 6789]

hours   int[ ]

rate   double[ ]

wages   double[ ]

REMEMBER that a subscript of [0] in each array points to the first employee, etc.

Set up a field: **final int EMPLOYEES = 6**;

Required methods for the Payroll class

setHoursAt   (i, hrs) void

setRateAt   (i, rt)   void

setWagesAt (i, wg) void

getEmpidAt   (i)   returns int

getWagesAt (i)   returns double ***

*** You may prefer to use a **getGrossPayAt**   method that accepts a subscript and then returns the result of   rate * hours

getGrossPayAt (i)   returns double

SECOND - Write a PayrollDemo 'demo/test' program that calls the above "Payroll class":

IT SHOULD:

a. Create an instance of the Payroll Class

b. Display each **empid number** and prompts the user to enter the **hours** and **rate** for that employee

c. Send that emplyee's **hours** and **rate** and **wages** (rate * hours) to their arrays in the Payroll Class

d. Print to screen each **empid number** along with **amount that employee earned**.

HINT: FOR THIS PROBLEM, **OVERTIME** CALCULATION IS **NOT REQUIRED**

OPTIONAL EXTRA CREDIT PROBLEM
MUST BE TO DR. GUYNES [not the grader]
By midnight APRIL 29TH in order to receive credit

Turn in this take home final **no later than** midnight TUESDAY APRIL 10th

TAKE HOME FINAL EXAM - 5 points

Read the first 7 pages from Chapter 8, and answer the following questions:

1) A static field is created by placing:
A) the key word static after the field name
B) the key word static after the access specifier and before the field's data type
C) the key word static after the access specifier and field's data type
D) it in a static field block

2) Static methods can only operate on _____ fields.
A) instance
B) static
C) global
D) local

3) Which of the following is NOT true about static methods?
A) It is not necessary for an instance of the class to be created to execute the method.
B) They are created by placing the key word static after the access specifier in the method header.
C) They are called from an instance of the class.
D) They are often used to create utility classes that perform operations on data, but have no need to collect and store data.

4) The only limitation that static methods have is:
A) they can refer to only non-static members of the class
B) they can only be called from static members of the class
C) they must be declared as public methods
D) they cannot refer to non-static members of the class

5) Java automatically stores this value in all uninitialized static member variables:
A) 0
B) -1
C) null
D) false

Email Dr. Guynes the 5 answers [just the letter of the answer]