

**Course Assessment Report**  
**Washtenaw Community College**

Discipline	Course Number	Title
Computer Science	161	CPS 161 11/29/2018-An Introduction to Programming with Java
Division	Department	Faculty Preparer
Business and Computer Technologies	Computer Science & Information Technology	Jai Bai
Date of Last Filed Assessment Report		

**I. Review previous assessment reports submitted for this course and provide the following information.**

1. Was this course previously assessed and if so, when?

Yes  The assessment was done in Winter 2012.
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2. Briefly describe the results of previous assessment report(s).

The students are doing well in basic programming, Object Oriented Programming (OOP) concepts and exceptions. Students are not familiar with how static methods work in polymorphic approach.
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3. Briefly describe the Action Plan/Intended Changes from the previous report(s), when and how changes were implemented.

The report indicated that the students would receive more instruction on static methods in polymorphic classes. No timeline was given.
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**II. Assessment Results per Student Learning Outcome**

Outcome 1: Identify appropriate use of simple programming constructs including loops and conditional logic.

- Assessment Plan
  - Assessment Tool: Multiple choice and short answer questions on a departmental exam
  - Assessment Date: Fall 2016

- Course section(s)/other population: All sections
- Number students to be assessed: All students
- How the assessment will be scored: Answer Key
- Standard of success to be used for this assessment: 70% of the students who take the exam will score better than 70%.
- Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2019	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
104	66

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Only 66 students took the test. 38 students either withdrew or stopped attending class.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

Out of the 5 sections, 1 is offered during the day on campus, 2 are DL, 1 is MM and 1 is offered in the evening on campus.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

This outcome is assessed by asking the students to answer multiple choice questions on a departmental exam.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

75.76% of the students scored better than 70% in the exam. Please see the attached spreadsheet.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students showed solid understanding of simple programming structure.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Students were continuously given demonstrations and exercises which benefits both achievement and continued improvement.

Outcome 2: Identify appropriate use of simple object-oriented concepts such as constructors, methods and overriding methods.

- Assessment Plan
  - Assessment Tool: Multiple choice and short answer questions on a departmental exam
  - Assessment Date: Fall 2016
  - Course section(s)/other population: All sections
  - Number students to be assessed: All students
  - How the assessment will be scored: Answer Key
  - Standard of success to be used for this assessment: 70% of the students who take the exam will score better than 70%.
  - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2019	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
104	66

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Only 66 students took the test. 38 students either withdrew or stopped attending class.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

Out of the 5 sections, 1 is offered during the day on campus, 2 are DL, 1 is MM and 1 is offered in the evening on campus.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

This outcome is assessed by asking the students to answer multiple choice questions on a departmental exam.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

75.76% of the students scored better than 70% in the exam. Please see the attached spreadsheet.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students show good knowledge on the concept of encapsulation.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

More demonstration is needed on the different behaviors when different types of parameters get passed into methods.

Outcome 3: Identify appropriate use of more advanced object-oriented concepts such as polymorphism, abstract classes and interfaces.

- Assessment Plan
  - Assessment Tool: Multiple choice and short answer questions on a departmental exam
  - Assessment Date: Fall 2016
  - Course section(s)/other population: All sections
  - Number students to be assessed: All students
  - How the assessment will be scored: Answer Key
  - Standard of success to be used for this assessment: 70% of the students who take the exam will score better than 70%.
  - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2019	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
104	66

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Only 66 students took the test. 38 students either withdrew or stopped attending class.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

Out of the 5 sections, 1 is offered during the day on campus, 2 are DL, 1 is MM and 1 is offered in the evening on campus.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

This outcome is assessed by asking the students to answer multiple choice questions on a departmental exam.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: <u>No</u>
This outcome is assessed differently. Due to the set-up in Blackboard, it is impossible to get the whole matrix of the question sets. Questions are randomly picked from a set for each student. Six questions were used to assess this outcome. The standard of success was not met.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students show understanding on the basic concept of inheritance and polymorphism.
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8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Students answered poorly on questions related to abstract class.
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Outcome 4: Identify appropriate use of exceptions.

- Assessment Plan
    - Assessment Tool: Multiple choice and short answer questions on a departmental exam
    - Assessment Date: Fall 2016
    - Course section(s)/other population: All sections
    - Number students to be assessed: All students
    - How the assessment will be scored: Answer Key
    - Standard of success to be used for this assessment: 70% of the students who take the exam will score better than 70%.
    - Who will score and analyze the data: Departmental faculty
1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2019	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
104	66

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Only 66 students took the test. 38 students either withdrew or stopped attending class.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

Out of the 5 sections, 1 is offered during the day on campus, 2 are DL, 1 is MM and 1 is offered in the evening on campus.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

This outcome is assessed by asking the students to answer multiple choice questions on a departmental exam.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

This outcome is assessed differently. Due to the set-up in Blackboard, it is impossible to get the whole matrix of the question sets. Questions are randomly picked from a set for each student. Six questions were used to assess this outcome. Please see the attached spreadsheet. Students are doing well except for question 2, which shows that most of them are not familiar with how parameter gets passed into "main".

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students showed good understanding of the basic concept of exception.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

There was one particular question that students had some trouble with. It shows that the students were not familiar with how parameters are passed into and used in “main” method. More demonstration and practice are needed.

Outcome 5: Develop Java code that uses object-oriented concepts and constructs.

- Assessment Plan
  - Assessment Tool: Programming Exercise
  - Assessment Date: Fall 2016
  - Course section(s)/other population: All sections
  - Number students to be assessed: Random sample of 25% of the students with a minimum of one full section.
  - How the assessment will be scored: Departmentally-developed rubric
  - Standard of success to be used for this assessment: 70% of the students will successfully complete the exercise.
  - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2019	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
104	58

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

58 students completed the task. 46 students either withdrew or stopped attending class.



4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

Out of the 5 sections, 1 is offered during the day on campus, 2 are DL, 1 is MM and 1 is offered in the evening on campus.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Students were asked to write a java program utilizing the basic object-oriented programming concepts. The assignment was graded using the departmentally-developed rubric.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

92.98% of the students scored better than 70%. Please see the attached spreadsheet.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students could properly use the basic object oriented programming concepts to develop java code.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

The machine problems that were assigned to the students through the semester really helped the students to practice and develop good coding skills.

### III. Course Summary and Intended Changes Based on Assessment Results

1. Based on the previous report's Intended Change(s) identified in Section I above, please discuss how effective the changes were in improving student learning.

2.

- Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

Students are doing very well with the basic coding structure and concepts but not so well with the more advanced OOP concepts, which is expected as it is an introductory programming course. A lot of students have no programming background, and there is a lot of material packed into the short 15 weeks.

- Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

This assessment will be shared and discussed with other faculty in the department meetings in the Fall semester.

- Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Outcome Language	Change outcome 3 to: Identify appropriate use of more advanced object-oriented concepts such as polymorphism and inheritance.  Remove abstract class and interface from outcome 3.	Fifteen weeks is too short to cover from what is a variable to how abstract classes work. Lecture time should be spent on emphasizing good coding design, habits and other basic coding skills and concepts. Interface is heavily used in 261 and will be discussed in depth there.	2020
Assessment Tool	Currently midterm and finals questions are randomized, and some questions are in question sets or blocks, meaning not all students will answer the same questions. Next time, when the	Even though randomizing questions and putting questions in question sets are both good ways to reduce plagiarism, it makes the data extract process extremely difficult	2022

	course is being assessed, "randomize" should be unchecked, and questions should be taken out of the question set.	and sometimes impossible. Blackboard does not provide a good matrix on exam results once questions are randomized.	
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6. Is there anything that you would like to mention that was not already captured?

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### III. Attached Files

[CPS161 201901](#)

**Faculty/Preparer:** Jai Bai **Date:** 07/02/2019

**Department Chair:** Philip Geyer **Date:** 07/03/2019

**Dean:** Eva Samulski **Date:** 07/07/2019

**Assessment Committee Chair:** Shawn Deron **Date:** 08/19/2019

**COURSE ASSESSMENT REPORT**

**I. Background Information**

1. Course assessed:  
 Course Discipline Code and Number: CPS161  
 Course Title: An Introduction to Programming/Java  
 Division/Department Codes: (CPS) Computer Science

2. Semester assessment was conducted (check one):

- Fall 2011\_\_
- Winter 20\_\_
- Spring/Summer 20\_\_

3. Assessment tool(s) used: check all that apply.

- Portfolio
- Standardized test
- Other external certification/licensure exam (specify):
- Survey
- Prompt
- Departmental exam
- Capstone experience (specify):
- Other (specify):

4. Have these tools been used before?

- Yes
- No

If yes, have the tools been altered since its last administration? If so, briefly describe changes made. N/A

5. Indicate the number of students assessed and the total number of students enrolled in the course. 17/24 (2 students were auditing, 2 Withdrawed from class, 1 no show). x

6. If all students were not assessed, describe how students were selected for the assessment. *(Include your sampling method and rationale.) All students who took the final.*

**II. Results**

1. Briefly describe the changes that were implemented in the course as a result of the previous assessment.  
 No previous assessment.
2. List each outcome that was assessed for this report exactly as it is stated on the course master syllabus.
  - a. Identify appropriate use of simple programming constructs including loops and conditional logic.
  - b. Identify appropriate use of simple object-oriented concepts such as constructors, methods and overriding methods.
  - c. Identify appropriate use of more advanced object-oriented concepts such as polymorphism, abstract classes and interfaces.
  - d. Identify appropriate use of exceptions.

logged 1/9/12 sjf  
 Approved by the Assessment Committee July 2011

for done  
 4/29/12

**COURSE ASSESSMENT REPORT**

3. For each outcome that was assessed, indicate the standard of success exactly as it is stated on the course master syllabus. *For each outcome, the standard of success from the course master syllabus is:*

The standard for success will be that 70% of the students who take the exam will score better than 70%.

Briefly describe assessment results based on data collected during the course assessment. Indicate the extent to which students are achieving each of the learning outcomes listed above and state whether the standard of success was met for each outcome.

*see the details in the file CPS161\_Assessment\_Details.docx.*

4. Describe the areas of strength and weakness in students' achievement of the learning outcomes shown in the assessment results. *(This should be an interpretation of the assessment results described above and a thoughtful analysis of student performance.)*

Strengths: basic programming, object oriented concepts and exceptions

Weaknesses: polymorphism

**III. Changes influenced by assessment results**

1. If weaknesses were found (see above) or students did not meet expectations, describe the action that will be taken to address these weaknesses. *(If students met all expectations, describe your plan for continuous improvement.)*

This average score for polymorphism was below the desired 70% standard we were looking for in the syllabus. The main reason this category scored low was because of questions 43 (6 correct) and 44(2 correct). Both of these questions were addressing one of the more obscure issues in this category. Questions 43 and 44 were addressing static methods in derived classes. In the case of static methods, the compiler makes the decision on which method is called which is opposite of the normal polymorphic approach where the decision is made at run time. More emphasis will be given to static methods in order to improve student performance on this objective.

2. Identify intended changes that will be instituted based on results of this assessment activity (check all that apply). Please describe changes and give rationale for change.

a.  Outcomes/Assessments on the Master Syllabus  
Change/rationale:

b.  Objectives/Evaluation on the Master Syllabus  
Change/rationale:

c.  Course pre-requisites on the Master Syllabus  
Change/rationale:

d.  1<sup>st</sup> Day Handouts  
Change/rationale:

e.  Course assignments  
Change/rationale: Students will receive a little more instruction on static methods in polymorphic

classes.

**COURSE ASSESSMENT REPORT**

f.  Course materials (check all that apply)

- Textbook
- Handouts
- Other:

g.  Instructional methods  
Change/rationale:

h.  Individual lessons & activities  
Change/rationale:

3. What is the timeline for implementing these actions? x

**IV. Future plans**

1. Describe the extent to which the assessment tools used were effective in measuring student achievement of learning outcomes for this course.

*The final exam given covers each of the course objectives as stated in the cps161 syllabus. The results indicated were mostly consistent with the expectations of the department. The one exception was previously discussed.*

2. If the assessment tools were not effective, describe the changes that will be made for future assessments.

3. Which outcomes from the master syllabus have been addressed in this report?

All   X   Selected       

If "All", provide the report date for the next full review:   Winter 2015  .

If "Selected", provide the report date for remaining outcomes: \_\_\_\_\_.

**Submitted by:**

Print: <u>  Clarence Hasselbach  </u> Faculty/Preparer	Signature <u>  Clarence Hasselbach  </u>	Date: <u>  1/3/2012  </u>
Print: <u>  Clarence Hasselbach  </u> Department Chair	Signature <u>  Clarence Hasselbach  </u>	Date: <u>  1/3/2012  </u>
Print: <u>  Rosemary Wilson  </u> Dean/Administrator	Signature <u>  Rosemary Wilson  </u>	Date: <u>  1/5/12  </u>