Course Assessment Report Washtenaw Community College

| Discipline | Course Number | Title |
| :--- | :--- | :--- |
| Academic Skills (new) | 123 | ACS 123 03/16/2022- <br> Information Literacy |
| College | Division | Department |
| Humanities, Social and <br> Behavioral Sciences | Humanities, Social and <br> Behavioral Sciences | English \& College <br> Readiness |
| Faculty Preparer | Julie Kissel |  |
| 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

It was last assessed Winter 2017 by Sandra McCarthy.
2. Briefly describe the results of previous assessment report(s).

The standard of success was met, but there was continued work to revise the questions used in the analysis of the course outcomes. It also identified that the students had the most difficulty with the Fair Use criterion.
3. Briefly describe the Action Plan/Intended Changes from the previous report(s), when and how changes were implemented.

The question revisions were completed after a review of the analysis reports from Blackboard.

## II. Assessment Results per Student Learning Outcome

Outcome 1: Recognize authoritative sources of various contents and formats, and identify how authority is conferred or manifested in unexpected ways.

- Assessment Plan
- Assessment Tool: In-class quiz
- Assessment Date: Fall 2020
- Course section(s)/other population: A minimum of two sections of ACS 123 from a three-year assessment cycle
- Number students to be assessed: All
- How the assessment will be scored: Answer key
- Standard of success to be used for this assessment: 75\% of students will score $75 \%$ or higher
- Who will score and analyze the data: Department faculty

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

| Fall (indicate years below) | Winter (indicate years <br> below) | SP/SU (indicate years <br> below) |
| :--- | :--- | :--- |
| $2021,2020,2020,2019$ | $2021,2021,2020$ | 2021 |

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

| \# of students enrolled | \# of students assessed |
| :--- | :--- |
| 67 | 86 |

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.

Data was used from the following semesters: Fall 2017, Winter 2018, Fall 2018, Winter 2019, Fall 2019, Winter 2020, Fall 2020, Winter 2021, Spring/Summer 2021, and Fall 2021
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.

Over the course of 5 years ( 10 terms), 133 students enrolled in ACS 123 (per success rates created by the WCC Institutional Research department. For those students who completed the course quizzes in Blackboard 86 samples were evaluated for this assessment. Please see the attachment for a breakdown of this data.
5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

There are four questions from quizzes 1-4 assessing each outcome; therefore, using 16 questions total for Outcomes $1,2,3$, and 4 , the results were available through the Blackboard reports tool. Please see the attachment for a breakdown of the questions.
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
For outcome \#1 related to authority, there was $95.35 \%$ success; 82/86 students scored greater than $75 \%$ on the quizzes.
7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

There was $100 \%$ success on this outcome. Students consistently demonstrated the ability to recognize authors, credentials, and publication type.
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 is no need to change this outcome at this time.

Outcome 2: Apply the steps used to assess content.

- Assessment Plan
- Assessment Tool: In-class quiz
- Assessment Date: Fall 2020
- Course section(s)/other population: A minimum of two sections of ACS 123 from the third year assessment cycle
- Number students to be assessed: All
- How the assessment will be scored: Answer key
- Standard of success to be used for this assessment: 75\% of students will score 75\% or higher
- Who will score and analyze the data: Department faculty

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

| Fall (indicate years below) | Winter (indicate years <br> below) | SP/SU (indicate years <br> below) |
| :--- | :--- | :--- |
| $2021,2020,2020,2019$ | $2021,2021,2020$ | 2021 |

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

| \# of students enrolled | \# of students assessed |
| :--- | :--- |
| 67 | 86 |

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.

Data was used from the following semesters: Fall 2017, Winter 2018, Fall 2018, Winter 2019, Fall 2019, Winter 2020, Fall 2020, Winter 2021, Spring/Summer 2021, and Fall 2021
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.

Over the course of 5 years ( 10 terms), 133 students enrolled in ACS 123 (per success rates created by the WCC Institutional Research department. For those students who completed the course quizzes in Blackboard 86 samples were evaluated for this assessment. Please see the attachment for a breakdown of this data.
5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

There are four questions from quizzes 1-4 assessing each outcome; therefore, using 16 questions total for Outcomes $1,2,3$, and 4 , the results were available through the Bb reports tool. Please see the attachment for a breakdown of the questions.
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

For outcome \#2 related to assessing content, there was $97.67 \%$ success; of the 86 students, 84 students scored greater than $75 \%$ on the quizzes.
7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

There was $98 \%$ success on this outcome. Students consistently demonstrated the ability to evaluate quickly long works, review citations, and apply the CRAAP test.
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 is no need to change this outcome at this time.

Outcome 3: Select reliable sources to meet information needs.

- Assessment Plan
- Assessment Tool: In-class quiz
- Assessment Date: Fall 2020
- Course section(s)/other population: A minimum of two sections of ACS 123 from the third year assessment cycle
- Number students to be assessed: All
- How the assessment will be scored: Answer key
- Standard of success to be used for this assessment: 75\% of students will score $75 \%$ or higher
- Who will score and analyze the data: Department faculty

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

| Fall (indicate years below) | Winter (indicate years <br> below) | SP/SU (indicate years <br> below) |
| :--- | :--- | :--- |
| $2021,2020,2020,2019$ | $2021,2021,2020$ | 2021 |

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

| \# of students enrolled | \# of students assessed |
| :--- | :--- |
| 67 | 86 |

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.

Data was used from the following semesters: Fall 2017, Winter 2018, Fall 2018, Winter 2019, Fall 2019, Winter 2020, Fall 2020, Winter 2021, Spring/Summer 2021, and Fall 2021
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.

Over the course of 5 years ( 10 terms), 133 students enrolled in ACS 123 (per success rates created by the WCC Institutional Research department. For those students who completed the course quizzes in Blackboard 86 samples were evaluated for this assessment. Please see the attachment for a breakdown of this data.
5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

There are four questions from quizzes 1-4 assessing each outcome; therefore, using 16 questions total for Outcomes $1,2,3$, and 4 , the results were available through the Bb reports tool. Please see the attachment for a breakdown of the questions.
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

For outcome \#3 related to finding reliable sources, there was $90.7 \%$ success; of the 86 students, 78 students scored greater than $75 \%$ on the quizzes.
7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

There was $90.7 \%$ success on this outcome. Students consistently demonstrated the ability to review e-books for descriptive information, and search using Google Advanced search or database tools.
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.

While students struggled the most on this outcome, the success rate was still very high. Since this outcome is one that requires on-going practice using the research
tools, more time practicing this activity with the librarian as well as independent practice could improve the students' success further.

Outcome 4: Recognize intellectual property as a legal construct and distinguish examples of copyright and plagiarism.

- Assessment Plan
- Assessment Tool: In-class quiz
- Assessment Date: Fall 2020
- Course section(s)/other population: A minimum of two sections of ACS 123 from the third year assessment cycle
- Number students to be assessed: All
- How the assessment will be scored: Answer key
- Standard of success to be used for this assessment: 75\% of students will score $75 \%$ or higher
- Who will score and analyze the data: Department faculty

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

| Fall (indicate years below) | Winter (indicate years <br> below) | SP/SU (indicate years <br> below) |
| :--- | :--- | :--- |
| $2021,2020,2020,2019$ | $2021,2021,2020$ | 2021 |

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

| \# of students enrolled | \# of students assessed |
| :--- | :--- |
| 67 | 86 |

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.

Data was used from the following semesters: Fall 2017, Winter 2018, Fall 2018, Winter 2019, Fall 2019, Winter 2020, Fall 2020, Winter 2021, Spring/Summer 2021, and Fall 2021
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.

Over the course of 5 years ( 10 terms), 133 students enrolled in ACS 123 (per success rates created by the WCC Institutional Research department. For those students who completed the course quizzes in Blackboard 86 samples were evaluated for this assessment. Please see the attachment for a breakdown of this data.
5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

There are four questions from quizzes 1-4 assessing each outcome; therefore, using 16 questions total for Outcomes $1,2,3$, and 4 , the results were available through the Bb reports tool. Please see the attachment for a breakdown of the questions.
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

For outcome \#4 related to intellectual property, there was $91.86 \%$ success; of the 86 samples, 79 scored greater than $75 \%$ on the quizzes.
7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

There was $91.86 \%$ success on this outcome. Students consistently demonstrated the ability to recognize intellectual property to avoid plagiarism or copyright infringement.
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.

While students did struggle more than outcomes \#1 and \#2, the success rate was still very high. There will be continued focus on the importance of understanding these issues in the classroom and in the workplace so that student success may improve.

## 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.

There were efforts to improve the questions used to assess the outcome. There will be continued discussions and time spent evaluating the questions and defining the activities used to teach the concepts.
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?

Although the standard of success was met, students would likely benefit from more time reviewing types of publications and the importance of avoiding plagiarism. If there are specific questions that could be considered ambiguous or outdated, those will be changed to meet the new standards.
3. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

This information will be shared with the department and with the librarians who teach the course.
4.

Intended Change(s)

| Intended Change | Description of the <br> change | Rationale | Implementation <br> Date |
| :--- | :--- | :--- | :--- |
| Course <br> Assignments <br> benefit from <br> additional practice <br> selecting reliable <br> research tools with <br> the guidance of the <br> librarian as well as <br> through <br> independent <br> practice. | While the success <br> rate was high, <br> students struggled <br> the most on this <br> outcome. <br> Additional practice <br> would strengthen <br> students' skills in <br> this area. | 2022 |  |
|  | We will continue to <br> focus on the <br> importance of <br> recognizing <br> intellectual property <br> as a legal construct <br> and distinguish <br> examples of <br> copyright and <br> plagiarism. | While still meeting <br> the standard of <br> success, students <br> struggled more with <br> Ahis outcome than | 2022 |
| Assignments |  |  |  |$\quad$| the others. |
| :--- |

5. Is there anything that you would like to mention that was not already captured? 6.

## III. Attached Files

ACS 123 Data File
Faculty/Preparer: Julie Kissel Date: 04/06/2022
Department Chair: Carrie Krantz Date: 04/07/2022
Dean: Scott Britten Date: 04/08/2022
Assessment Committee Chair: Shawn Deron Date: 04/26/2022

Course Assessment Report Washtenaw Community College

| Discipline | Course Number | Title |
| :--- | :--- | :--- |
| Academic Skills | 123 | ACS 123 08/31/2017- <br> Information Literacy |
| Division | Department | Faculty Preparer |
| Humanities, Social and <br> Behavioral Sciences | Academic Skills | Sandra McCarthy |
| Date of Last Filed Assessment Report |  |  |

## I. Assessment Results per Student Learning Outcome

Outcome 1: Recognize authoritative sources of various contents and formats, and identify how authority is conferred or manifested in unexpected ways.

- Assessment Plan
o Assessment Tool: In-class quiz
o Assessment Date: Winter 2017
o Course section(s)/other population: minimum of two sections of ACS 123 from a three-year assessment cycle
o Number students to be assessed: all
o How the assessment will be scored: Answer Key
o Standard of success to be used for this assessment: $75 \%$ of students attempting the quiz will demonstrate a score equal to or greater than $75 \%$ ("C").
o Who will score and analyze the data: department faculty

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

| Fall (indicate years below) | Winter (indicate years <br> below) | SP/SU (indicate years <br> below) |
| :--- | :--- | :--- |
| 2016 | 2017,2016 |  |

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

| \# of students enrolled | \# of students assessed |
| :--- | :--- |
| 61 | 34 |

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.

The differences in the number of students assessed compared to the number enrolled arise because some students were no longer participating in the course (either formally through withdrawal or informally by attrition or non-completion).
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.

Only DL students were assessed because this course is only offered online.
Our assessment indicates that we will use a minimum of two sections of the enrolled students who completed the quizzes.

To promote more meaningful results, we decided to include more students in the assessment. To that end, we used the data from 3 sections of ACS 123 Winter 2016, Fall 2016, and Winter 2017.
5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The process used to assess outcome \#1 included completing three quizzes in Blackboard.

Four (4) questions from the three (3) quizzes was identified to assess authoritative sources of information (outcome \#1). See attached Supplemental Material Quiz Questions document for list of questions from the three quizzes.

Faculty members gathered data from individual students for each semester and recorded scores in Excel spreadsheet for each outcome. See attached ACS 123 Assessment by Outcome for complete data scores.
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

Thirty-four (34) students completed four (4) questions about authority and 31 scored a $75 \%$ or higher. That is $91 \%$ of the respondents.

Quizzes are located in Blackboard course site. Scores were automatically generated.
7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students did well on recognizing authoritative sources, evaluating a website's authority and the use of Wikipedia.
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.

Although students met the standard of success, we will continue to strive for better completion on the quizzes with a careful analysis of questions for ambiguity and revise as needed. Students had more difficulty with identifying types of publications.

We have identified outcome \#1 as an outcome that could be more thoroughly assessed in certain quizzes.

Outcome \#1 - Recognize authoritative sources of various contents and formats, and identify how authority is conferred or manifested in unexpected ways (authority)

We plan to create new questions that address outcome \#1. No questions assessing authority appeared in the Online Catalog Quiz; will add more Authority questions to Online Catalog Quiz.

Outcome 2: Apply the steps used to assess content.

- Assessment Plan
o Assessment Tool: In-class quiz
o Assessment Date: Winter 2017
o Course section(s)/other population: minimum of two sections of ACS 123 from the third year assessment cycle
o Number students to be assessed: all
o How the assessment will be scored: Answer Key
o Standard of success to be used for this assessment: 75\% of students attempting the quiz will demonstrate a score equal to or greater than $75 \%$ ("C").
o Who will score and analyze the data: department faculty

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

| Fall (indicate years below) | Winter (indicate years <br> below) | SP/SU (indicate years <br> below) |
| :--- | :--- | :--- |
| 2016 | 2017,2016 |  |

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

| \# of students enrolled | \# of students assessed |
| :--- | :--- |
| 61 | 34 |

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.

Total assessed: 34 for Winter 2016, Fall 2016, and Winter 2017
The differences in the number of students assessed compared to the number enrolled arise because some students were no longer participating in the course (either formally through withdrawal or informally by attrition or non-completion).
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.

Only DL students were assessed because this course is only offered online.
Our assessment indicates that we will use a minimum of two sections of the enrolled students who completed the quizzes.

To promote more meaningful results, we decided to include more students in the assessment. To that end, we used the data from 3 sections of ACS 123 Winter 2016, Fall 2016, and Winter 2017.
5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The process used to assess outcome \#2 included completing three quizzes in Blackboard.

Four (4) questions from the four (4) quizzes was identified to assess evaluating sources of information (outcome \#2). See attached Supplemental Material Quiz Questions document for list of questions from the three quizzes.

Faculty members gathered data from individual students for each semester and recorded scores in Excel spreadsheet for each outcome. See attached ACS 123 Assessment by Outcome for complete data scores.
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

Thirty-four (34) students completed four (4) questions about evaluation and 32 scored a $75 \%$ or higher. That is $94 \%$ of the respondents.

Quizzes are located in Blackboard course site. Scores were automatically generated.
7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students did well on identifying ways to evaluate a book, evaluating the subject of article citations, and the standard for evaluating websites using CRAAP.
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.

Although students met the standard of success, we will continue to strive for better completion on the quizzes with a careful analysis of questions for ambiguity and revise as needed. Students had the most difficulty identifying scholarly articles based on a review of the citation.

Questions from quizzes specific to outcome \#2 will be reviewed and revised accordingly to include more questions about evaluating sources. Question revisions will be based on analysis reports from Blackboard.

Outcome 3: Use research tools to find reliable sources to meet information needs.

- Assessment Plan
o Assessment Tool: In-class quiz
o Assessment Date: Winter 2017
- Course section(s)/other population: minimum of two sections of ACS 123 from the third year assessment cycle
o Number students to be assessed: all
o How the assessment will be scored: Answer Key
o Standard of success to be used for this assessment: $75 \%$ of students attempting the quiz will demonstrate a score equal to or greater than $75 \%$ ("C").
o Who will score and analyze the data: department faculty

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

| Fall (indicate years below) | Winter (indicate years <br> below) | SP/SU (indicate years <br> below) |
| :--- | :--- | :--- |
| 2016 | 2017 |  |

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

| \# of students enrolled | \# of students assessed |
| :--- | :--- |
| 42 | 34 |

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.

Total assessed: 34 for Winter 2016, Fall 2016, and Winter 2017
The differences in the number of students assessed compared to the number enrolled arise because some students were no longer participating in the course (either formally through withdrawal or informally by attrition or non-completion).
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.

Only DL students were assessed because this course is only offered online.
Our assessment indicates that we will use a minimum of two sections of the enrolled students who completed the quizzes.

To promote more meaningful results, we decided to include more students in the assessment. To that end, we used the data from 3 sections of ACS 123 Winter 2016, Fall 2016, and Winter 2017.
5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The process used to assess student outcome \#3 included completing three quizzes in Blackboard.

Four (4) questions from the four (4) quizzes were identified to assess finding sources of information (outcome \#3). See attached Supplemental Material Quiz Questions document for list of questions from the three quizzes.

Faculty members gathered data from individual students for each semester and recorded scores in Excel spreadsheet for each outcome. See attached ACS 123 Assessment by Outcome for complete data scores.
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

Thirty-four (34) students completed four (4) questions about evaluation and 30 scored a $75 \%$ or higher. That is $88 \%$ of the respondents.

Quizzes are located in Blackboard course site. Scores were automatically generated.
7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students did well on questions related to identifying the subject heading of a book and an article, and using connectors in a search.
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.

Although students met the standard of success, we will continue to strive for better completion on the quizzes with a careful analysis of questions for ambiguity and revise as needed. Students had more difficulty using advanced search tools.

We have identified outcome \#3 as an outcome that could be more thoroughly assessed in certain quizzes.

Outcome \#3 - Use research tools to find reliable sources to meet information needs (find)

Questions from quizzes specific to outcome \#3 will be reviewed and revised accordingly to include more questions about finding sources. Question revisions will be based on analysis reports from Blackboard.

Outcome 4: Recognize intellectual property as a legal construct and distinguish examples of copyright and plagiarism.

- Assessment Plan
o Assessment Tool: In-class quiz
o Assessment Date: Winter 2017
o Course section(s)/other population: minimum of two sections of ACS 123 from the third year assessment cycle
o Number students to be assessed: all
o How the assessment will be scored: Answer Key
o Standard of success to be used for this assessment: 75\% of students attempting the quiz will demonstrate a score equal to or greater than $75 \%$ ("C").
o Who will score and analyze the data: department faculty

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

| Fall (indicate years below) | Winter (indicate years <br> below) | SP/SU (indicate years <br> below) |
| :--- | :--- | :--- |
| 2016 | 2017 |  |

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

| \# of students enrolled | \# of students assessed |
| :--- | :--- |
| 42 | 34 |

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.

Total assessed: 34 for Winter 2016, Fall 2016, and Winter 2017
The differences in the number of students assessed compared to the number enrolled arise because some students were no longer participating in the course (either formally through withdrawal or informally by attrition or non-completion).
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.

Only DL students were assessed because this course is only offered online.
Our assessment indicates that we will use a minimum of two sections of the enrolled students who completed the quizzes.

To promote more meaningful results, we decided to include more students in the assessment. To that end, we used the data from 3 sections of ACS 123 Winter 2016, Fall 2016, and Winter 2017.
5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The process used to assess student outcome \#4 included completing one quiz in Blackboard.

Four (4) questions from the one (1) quiz were identified to assess plagiarism and copyright (outcome \#4). See attached Supplemental Material Quiz Questions document for list of questions from the one quiz.

Faculty members gathered data from individual students for each semester and recorded scores in Excel spreadsheet for each outcome. See attached ACS 123 Assessment by Outcome for complete data scores.
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

Thirty-four (34) students completed four (4) questions about evaluation and 29 scored a $75 \%$ or higher. That is $85 \%$ of the respondents.

Quizzes are located in Blackboard course site. Scores were automatically generated.
7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students did well on defining plagiarism and ways to avoid misuse of information, as well as information about copyright protection.
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.

Although students met the standard of success, we will continue to strive to analyze questions for ambiguity and revise as needed. Students had the most difficulty with Fair Use criterion.

Question revisions will be based on analysis reports from Blackboard.

## II. Course Summary and Action Plans Based on Assessment Results

1. 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?

ACS 123 Information Literacy successfully teaches students the set of abilities that encompass the reflective discovery of information, the understanding of how information is produced and valued, and the use of information in creating new knowledge and participating ethically in communities of learning. We continue to revise the course content to reflect the evolving nature of information dissemination.

Information literacy extends throughout students’ academic and professional careers.
2. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

This information will be shared with the department chair after completion.
3.

Intended Change(s)

| Intended Change | Description of the <br> change | Rationale | Implementation <br> Date |
| :--- | :--- | :--- | :--- |
| Assessment Tool | Although students <br> met the standard of <br> success, we will | We want to better <br> assess two of our <br> learning outcomes | 2018 |


|  | continue to strive for better completion on the quizzes with a careful analysis of questions for ambiguity and revise as needed. <br> We have identified two outcomes that need to be more thoroughly assessed in certain quizzes. The two outcomes are <br> o Recognize authoritative sources of various contents and formats, and identify how authority is conferred or manifested in unexpected ways <br> o Use research tools to find reliable sources to meet information needs <br> We plan to create questions that address these two outcomes. | and completion rate. |  |
| :---: | :---: | :---: | :---: |
| Assessment Tool | We want to make one (1) test rather than four (4) quizzes. | The rationale is that it's easier to track and compile data. | 2018 |

4. Is there anything that you would like to mention that was not already captured?

The course also requires students to reflect on their research process each week in a journal entry and participate in the discussion boards, as well as complete all assignments.

The students' reflective writings have confirmed that students feel the course is fundamental to their academic success.

## III. Attached Files

ACS 123 Data spreadsheet
Supplemental Material Quiz Questions
Faculty/Preparer: Sandra McCarthy Date: 01/17/2018
Department Chair: Jessica Hale Date: 01/17/2018
Dean: Kristin Good Date: 01/22/2018
Assessment Committee Chair: Michelle Garey Date: 02/26/2018

Course Assessment Report Washtenaw Community College

| Discipline | Course Number | Title |
| :--- | :--- | :--- |
| Academic Skills | 123 | ACS 123 01/24/2014- <br> Information Literacy |
| Division | Department | Faculty Preparer |
| Humanities, Social and <br> Behavioral Sciences | Academic Skills | Sandra McCarthy |
| Date of Last Filed Assessment Report |  |  |

## I. Assessment Results per Student Learning Outcome

Outcome 1: Search, retrieve, and evaluate sources from online catalog.

- Assessment Plan
- Assessment Tool: In class quiz
- Assessment Date: Fall 2013
- Course section(s)/other population: minimum of two sections of ACS 123 from the third year and sixth year of assessment cycle.
- Number students to be assessed: all
- How the assessment will be scored: Quiz in Blackboard
- Standard of success to be used for this assessment: 75\% of students will demonstrate $75 \%$ " C " or higher per each learning outcome.
- Who will score and analyze the data: The faculty instructors will score and analyze the data.

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

| Fall (indicate years below) | Winter (indicate years <br> below) | SP/SU (indicate years <br> below) |
| :--- | :--- | :--- |
| 2013,2012 | 2013,2012 |  |

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

| \# of students enrolled | \# of students assessed |
| :--- | :--- |
| 85 | 60 |

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.
All enrolled students not assessed due to absence, withdrawal and did not complete quiz.
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.

All students were included in the assessment. Students were required to take quizzes online.
5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Students were required to take a quiz based on the material covered in the unit and the corresponding assignments. The online catalog quiz included 20 multiple choice questions. We calculated the overall class average for each outcome (quiz) to determine if the students met the standard of success.
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

The overall class average for outcome \#1 using the online catalog quiz was $80 \%$. This demonstrates attainment of $75 \%$ " C " or higher for this learning outcome.
7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

The learning outcome met the standard of success based on learning unit content, corresponding assignments, and reflective writings that were completed prior to taking the quiz.
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.

Continue to review quiz questions for ambiguity and revise as needed.
We will strive to achieve a better completion rate on quizzes.

Outcome 2: Search, retrieve, and evaluate sources from research databases.

- Assessment Plan
- Assessment Tool: In class quiz
- Assessment Date: Fall 2013
- Course section(s)/other population: minimum of two sections of ACS 123 from the third year and sixth year of assessment cycle.
- Number students to be assessed: all
- How the assessment will be scored: Quiz in Blackboard
- Standard of success to be used for this assessment: 75\% of students will demonstrate $75 \%$ " C " or higher per each learning outcome.
- Who will score and analyze the data: The faculty instructors will score and analyze the data.

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

| Fall (indicate years below) | Winter (indicate years <br> below) | SP/SU (indicate years <br> below) |
| :--- | :--- | :--- |
| 2013,2012 | 2013,2012 |  |

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

| \# of students enrolled | \# of students assessed |
| :--- | :--- |
| 85 | 52 |

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.

All enrolled students not assessed due to absence, withdrawal and did not complete quiz.
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.

All students were included in the assessment. Students were required to take quizzes online.
5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Students were required to take a quiz based on the material covered in the unit and
the corresponding assignments. The research database quiz included 20 multiple choice questions. We calculated the overall class average for each outcome (quiz) to determine if the students met the standard of success.
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
The overall class average for outcome \#2 using the research database quiz was $75 \%$. This demonstrates attainment of $75 \%$ " C " or higher for this learning outcome.
7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

The learning outcome met the standard of success based on learning unit content, corresponding assignments, and reflective writings that were completed prior to taking the quiz.
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.

Continue to review quiz questions for ambiguity and revise as needed.
We will strive to achieve a better completion rate on quizzes.

Outcome 3: Search, retrieve, and evaluate sources from the Web.

- Assessment Plan
- Assessment Tool: In class quiz
- Assessment Date: Fall 2013
- Course section(s)/other population: minimum of two sections of ACS 123 from the third year and sixth year of assessment cycle.
- Number students to be assessed: all
- How the assessment will be scored: Quiz in Blackboard
- Standard of success to be used for this assessment: 75\% of students will demonstrate $75 \%$ "C" or higher per each learning outcome.
- Who will score and analyze the data: The faculty instructors will score and
analyze the data.

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

| Fall (indicate years below) | Winter (indicate years <br> below) | SP/SU (indicate years <br> below) |
| :--- | :--- | :--- |
| 2013,2012 | 2013,2012 |  |

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

| \# of students enrolled | \# of students assessed |
| :--- | :--- |
| 85 | 52 |

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.

All enrolled students not assessed due to absence, withdrawal and did not complete quiz.
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.

All students were included in the assessment. Students were required to take quizzes online.
5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Students were required to take a quiz on the material covered in the unit and the corresponding assignments. The web searching quiz included 15 multiple choice and true/false questions. We calculated the overall class average for each outcome (quiz) to determine if the students met the standard of success.
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

The overall class average for outcome \#3 using the web searching quiz was $83 \%$. This demonstrates attainment of $75 \%$ " C " or higher for this learning outcome.
7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

The learning outcome met the standard of success based on learning unit content, corresponding assignments, and reflective writings that were completed prior to taking the quiz.
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.

Continue to review quiz questions for ambiguity and revise as needed.
We will strive to achieve a better completion rate on quizzes.

Outcome 4: Define copyright, fair use of copyrighted material, and plagiarism as it pertains to everyday situations.

- Assessment Plan
- Assessment Tool: In class quiz
- Assessment Date: Fall 2013
- Course section(s)/other population: minimum of two sections of ACS 123 from the third year and sixth year of assessment cycle.
- Number students to be assessed: all
- How the assessment will be scored: Quiz in Blackboard
- Standard of success to be used for this assessment: 75\% of students will demonstrate $75 \%$ " C " or higher per each learning outcome.
- Who will score and analyze the data: The faculty instructors will score and analyze the data.

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

| Fall (indicate years below) | Winter (indicate years <br> below) | SP/SU (indicate years <br> below) |
| :--- | :--- | :--- |
| 2013,2012 | 2013,2012 |  |

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

| \# of students enrolled | \# of students assessed |
| :--- | :--- |
| 85 | 48 |

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.

All enrolled students not assessed due to absence, withdrawal and did not complete quiz.
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.

All students were included in the assessment. Students were required to take quizzes online.
5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Students were required to take a quiz based on the material covered in the unit and the corresponding assignments. The Plagiarism/Copyright quiz included 20 multiple choice and true/false questions. We calculated the overall class average for each outcome (quiz) to determine if the students met the standard of success.
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
The overall class average for outcome \#4 plagiarism/copyright quiz was $83 \%$. This demonstrates attainment of $75 \%$ " C " or higher for this learning outcome.
7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

The learning outcome met the standard of success based on learning unit content, corresponding assignments, and reflective writings that were completed prior to taking the quiz.
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.

Continue to review quiz questions for ambiguity and revise as needed.
We will strive to achieve a better completion rate on quizzes.

## II. Course Summary and Action Plans Based on Assessment Results

1. 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?
ACS 123 Information Literacy successfully taught students to find, locate, evaluate and communicate information legally and ethically.

The assessment process confirms attainment of learning outcomes. Starting Winter 2013, ACS 123 is an online class.
2. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

This information will be shared with the department chair after completion.
3.

Intended Change(s)

| Intended Change | Description of the <br> change | Rationale | Implementation <br> Date |
| :--- | :--- | :--- | :--- |
| Outcome Language | We need to evaluate <br> the standard of <br> success and perhaps <br> revise it to reflect <br> what we are <br> actually doing. We <br> will compare data <br> from the existing <br> report to determine <br> the best strategy for <br> assessing the <br> course. | We didn't use the <br> standard of success <br> as defined on the <br> master syllabus. | 2015 |

4. Is there anything that you would like to mention that was not already captured?

In addition to quizzes, we also required assignments, discussion board entries, and reflective writings scored with rubrics that are part of the students' final grades.

The on campus class made a successful transition to an online class format.

## III. Attached Files

Scoring for Quizzes

Faculty/Preparer:
Department Chair:

Sandra McCarthy Date: 02/25/2014
Bonnie Arnett Date: 03/03/2014

| Dean: | Dena Blair | Date: 03/04/2014 |
| :--- | :---: | :--- |
| Assessment Committee Chair: | Michelle Garey | Date: 03/21/2014 |

## Course Assessment Report

## I. Background Information

1. Course assessed:

Course Discipline Code and Number: ACS 123
Course Title: Information Literacy
Division/Department Codes: HSS/ACSD
2. Semester assessment was conducted (check one):
oFFal 2010
$\square$ Winter 20
$\square$ Spring/Summer 20
3. Assessment tools) used: check all that apply.
$\square$ Portfolio
Standardized test
Other external certification/licensure exam (specify):
Survey
Prompt
Departmental exam
Capstone experience (specify):
$母$ Other (specify): Final project: Subject Search Guide
4. Have these tools been used before?
$\square \mathrm{Yes}$
$\square \mathrm{No}$

If yes, have the tools been altered since its last administration? If so, briefly describe changes made. Yes, these tools have been used for the past three years. No changes have been made from year to year.
5. Indicate the number of students assessed/total number of students enrolled in the course.

For Course Number 94154 Section H1 16 students assessed/ 24 total number of students enrolled.
For Course Number 94156 Section H2 21 students assessed/ 22 total number of students enrolled.
6. Describe how students were selected for the assessment.

As indicated in the master syllabus, we assessed two sections of ACS 123 in the Fall 2010 semester. All students still enrolled in the course at the end of 7.5 weeks were included in the assessment for both sections. Overall, the cumulated data is sufficiently representative to meet the criteria of our plan.

## II. Results

1. Briefly describe the changes that were implemented in the course as a result of the previous assessment.

This is the first assessment for both sections of the course. However, we are constantly revising and adapting instruction, activities, and lesson plans in the course to improve quality and currency.
2. List each outcome that was assessed for this report exactly as it is stated on the course master syllabus.

1. Use general information sources for the research topic
2. Modify the topic to achieve a focus
3. Use citations from various information formats (print books, ebooks, print journals, electronic journals, web pages) on the topic
4. Select an appropriate documentation style and use it to cite sources
5. Define copyright, fair use of copyrighted material, and plagiarism and apply to everyday situations

## Course Assessment Report

3. Briefly describe assessment results based on data collected during the course assessment, demonstrating the extent to which students are achieving each of the learning outcomes listed above. Please attach a summary of the data collected.
Outcome 1: Use general information sources for the research topic
$75 \%$ of the students assessed achieved 2 points or above proficiency on Outcome 1. This represents 27 of the 36 students meeting the outcome.

Outcome 2: Modify the topic to achieve a focus
$33 \%$ of the students assessed achieved 2 points or above proficiency on Outcome 2. This represents 12 of the 36 students meeting the outcome.

Outcome 3: Use citations from various information formats (print books, ebooks, print journals, eletronic journals, web pages) on the topic
$100 \%$ of the students assessed achieved 2 points or above proficiency on Outcome 3. This represents 36 of the 36 students meeting the outcome.

Outcome 4: Select an appropriate documentation style and use it to cite sources
$83 \%$ of the students assessed achieved 2 points or above proficiency on Outcome 4. This represents 30 of the 36 students meeting the outcome.

Outcome 5: Define copyright, fair use of copyrighted material, and plagiarism and apply to everyday situations. The assessment used for this outcome was a 20 question test.
$77.8 \%$ of the students assessed demonstrated "C-" level or above proficiency on the Copyright and Plagiarism final test. This represents 28 of the 36 students meeting the outcome.

NOTE: See attached Rubric with scores.
NOTE: See attached summary of Final Test for Copyright/Plagiarism
4. For each outcome assessed, indicate the standard of success used, and the percentage of students who achieved that level of success. Please attach the rubric/scoring guide used for the assessment.

The standard for success for Outcomes 1-4 is achieving 2 points or above as outline in the rubric.
For Outcomes 1-4, see attached rubric.
$75 \%$ of the students assessed achieved 2 points or above proficiency on Outcome 1 $33 \%$ of the students assessed achieved 2 points or above proficiency on Outcome 2
$100 \%$ of the students assessed achieved 2 points or above proficiency on Outcome 3
$83 \%$ of the students assessed achieved 2 points or above proficiency on Outcome 4
The standard of success for Outcome 5 is achieving $75 \%$ or above on the Copyright and Plagiarism final test.
For Outcome 5, at least $75 \%$ of students achieved "C-" or above. See attached data summary. $77.8 \%$ of the students assessed demonstrated "C-" level or above proficiency on the Copyright and Plagiarism final test.
5. Describe the areas of strength and weakness in students' achievement of the learning outcomes shown in assessment results.

Strengths:
Outcome 1: Although only $75 \%$ of the students met the expectation of scoring 2 or higher on rubrics, all students did complete an assignment that required them to use a general information source.

## Course Assessment Report

Outcome 2: Although only $33 \%$ of the students met the expectation of scoring 2 or higher on rubrics, all students did complete an assignment that required them to identify key concepts and terms.

Outcome 3: Students were able to select and evaluate different information sources pertinent to their topic.

Overall, $81 \%$ of the students, received a "C-" or above in the course as a final grade.
Weaknesses:
Outcome 1: Some students misunderstood that the general information source they identified in Assignment 1 was to be included in the Final Project/Subject Search Guide.

Outcome 2: Two-thirds of students did not meet the expected 2 points or higher on rubrics. Although all students identified key concepts and terms in Assignment 1, they did not include the information in the Final Project/Subject Search Guide as expected.

Outcome 5: Some questions were worded ambiguously and need to be revised.

## 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.

Outcome 1 and 2: We will clarify the expectation of Assignment 1 using general information sources and identifying key concepts and terms to be included in the final project/Subject Search Guide. This will only apply to Winter 2011 and Spring/Summer 2011 semesters.

Outcome 5: We will review all questions of the final test for ambiguity and revise accordingly.
2. Identify intended changes that will be instituted based on results of this assessment activity (check all that apply). Prease describe changes and give rationale for change.
a. Qutcomes/Assessments on the Master Syllabus Change/rationale:
Remove Outcome 4 from Master Syllabus. There are many online citation tools easily available that students can use to create citations.

Change Assessment tool for Outcomes 1-3. Can be better evaluated as a process than a final project/Subject Search Guide.
b. XObjectives/Evaluation on the Master Syllabus Change/rationale:

Remove the objective "Document sources using MLA style or another appropriate research documentation style." There are many online citation tools easily available that students can use to create citations.

Objectives (will be retained)
Identify and enumerate potential sources of information
Choose topics based on quantity and quality of information

Demonstrate how to narrow a topic
Locate, access, and retrieve information from multiple sources and formats

Critically evaluate information to determine its relevance, accuracy, and authority

Evaluation (changes)
In class exercise and quiz
In class exercise and quiz
In class exercise and quiz
In class exercise and quiz

In class exercise and quiz
In class exercise and quiz

## Course Assessment Report

Rationale for changes to the above evaluation is they can be better evaluated as a process than a final project.
c. $\square$ Course pre-requisites on the Master Syllabus Change/rationale:
d. $\square$$1^{\text {st }}$ Day Handouts Change/rationale:
e.
 Course assignments
Change/rationale:
Removing all home assignments and Final Proiect/Subject Search Guide. They will be replaced with in class exercises and quizzes.
f.Course materials (check all that apply)


Textbook
Handouts
Other:
g. Instructional methods Change/rationale:

Move to student centered learning.
h. Individual lessons \& activities
Change/rationale: Change/rationale:
There will be more inclass activities.
3. What is the timeline for implementing these actions?

We hope to implement these changes for Fall 2011 semester.

## 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 assessment tools that we used are effective.
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 XX Selected

If "All", provide the report date for the next full review: $\qquad$ Fall 2013

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

## Submitted by:



