Washtenaw Community College Comprehensive Report

MTH 160 Basic Statistics
Effective Term: Spring/Summer 2020

Course Cover

Division: Math, Science and Engineering Tech
Department: Math & Engineering Studies
Discipline: Mathematics
Course Number: 160
Org Number: 12200
Full Course Title: Basic Statistics
Transcript Title: Basic Statistics
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Time Schedule , Web Page
Reason for Submission: Three Year Review / Assessment Report
Change Information:
    Course description
    Outcomes/Assessment
Rationale: There are several reasons for doing a course syllabus revision ahead of schedule. First, the assessment schedule for this course is now planned as a two-year cycle, and we intend to align the timing of course assessments with relevant syllabus updates. Second, the textbook used for the course changed to a new edition, with significant changes to the eBook/homework-testing system. Third, prior to now, the first outcome of the course was all-encompassing, and we aim to update the syllabus to more accurately reflect how we are interpreting the outcome in our assessment. Additionally, we intend to update the second outcome of the course to incorporate the concept of linear regression that plays a large role in Basic Statistics.
Proposed Start Semester: Fall 2019
Course Description: In this course, students will use elementary statistics to achieve statistical literacy. Emphasis is on interpretation and evaluation of statistical results. Broad topics include descriptive statistics, linear regression, basic probability theory and inferential statistics. Specific topics include describing data sets graphically and numerically, measures of center and spread, bivariate data and least squares regression, correlation, random variables, basic probability distributions, confidence intervals and hypothesis tests. A graphing calculator is required for this course. See the time schedule for current brand and model.

Course Credit Hours

Variable hours: No
Credits: 4
Lecture Hours: Instructor: 60 **Student:** 60
Lab: Instructor: 0 **Student:** 0
Clinical: Instructor: 0 **Student:** 0

Total Contact Hours: Instructor: 60 **Student:** 60
Repeatable for Credit: NO
Grading Methods: Letter Grades
Audit
Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

Level 3

Requisites

General Education

Degree Attributes

Assoc in Applied Sci - Area 3

Assoc in Science - Area 3

Assoc in Arts - Area 3

MACRAO Science & Math

Michigan Transfer Agreement - MTA

MTA Mathematics

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Identify common statistical terminology, and represent qualitative and quantitative data in tables and graphs.

   Assessment 1

   Assessment Tool: Common final exam questions

   Assessment Date: Spring/Summer 2021

   Assessment Cycle: Every Two Years

   Course section(s)/other population: All

   Number students to be assessed: 10-20% representative random sample of students completing the assessment instrument in each course section

   How the assessment will be scored: The selected set of common questions for this outcome from the paper and online versions of the approved department final exam will be matched and scored with a rubric

   Standard of success to be used for this assessment: 70% of students will score at least 70% on the selected set of questions assessed for this outcome

   Who will score and analyze the data: Course mentor (coordinator)/department faculty

2. Interpret, plan, produce and apply descriptive statistics, including common quantitative measures for univariate data and common quantitative measures related to linear regression analysis of bivariate data.

   Assessment 1

   Assessment Tool: Common final exam questions

   Assessment Date: Spring/Summer 2021

   Assessment Cycle: Every Two Years

   Course section(s)/other population: All

   Number students to be assessed: 10-20% representative random sample of students completing the assessment instrument in each course section

   How the assessment will be scored: The selected set of common questions for this outcome from the paper and online versions of the approved department final exam will be matched and scored with a rubric

   Standard of success to be used for this assessment: 70% of students will score at least 70% on the selected set of questions assessed for this outcome

   Who will score and analyze the data: Course mentor (coordinator)/department faculty

3. Interpret and apply probability, discrete probability distributions and common continuous probability distributions.

Assessment 1

Assessment Tool: Common final exam questions

Assessment Date: Spring/Summer 2021

Assessment Cycle: Every Two Years

Course section(s)/other population: All

Number students to be assessed: 10-20% representative random sample of students completing the assessment instrument in each course section

How the assessment will be scored: The selected set of common questions for this outcome from the paper and online versions of the approved department final exam will be matched and scored with a rubric

Standard of success to be used for this assessment: 70% of students will score at least 70% on the selected set of questions assessed for this outcome

Who will score and analyze the data: Course mentor (coordinator)/department faculty

4. Interpret, plan, produce and apply inferential statistics.

Assessment 1

Assessment Tool: Common final exam questions

Assessment Date: Spring/Summer 2021

Assessment Cycle: Every Two Years

Course section(s)/other population: All

Number students to be assessed: 10-20% representative random sample of students completing the assessment instrument in each course section

How the assessment will be scored: The selected set of common questions for this outcome from the paper and online versions of the approved department final exam will be matched and scored with a rubric

Standard of success to be used for this assessment: 70% of students will score at least 70% on the selected set of questions assessed for this outcome

Who will score and analyze the data: Course mentor (coordinator)/department faculty

Course Objectives

1. Use standard statistics terminology to describe the output of technology, or written narrative, of inferential statistics.
2. Classify variables and types of data.
3. Recognize and critique varied descriptive statistical summaries such as tables, graphs and numerical measures.
4. Tabulate data, and prepare varied statistical summaries such as tables, graphs and numerical measures.
5. Construct and interpret a scatterplot for two variables.
6. Calculate and interpret the correlation coefficient for two variables.
7. Calculate the equation of the least squares regression line, and use it to predict values of the response variable from values of the explanatory variable.
8. Calculate and interpret basic probabilities.
9. Produce discrete probability distributions corresponding to empirical data or discrete random variables.
10. Interpret discrete probability distributions, and calculate the corresponding means and standard deviations.
11. Interpret and apply normal probability distributions.
12. Summarize attributes of sampling distributions and recognize their connection to the normal distribution.
13. Interpret, construct and apply confidence intervals and calculate sample sizes necessary, given a margin of error and confidence level.
14. Interpret and develop statistical hypotheses for one and two populations.
15. Make statistical tests of hypotheses about means and proportions for one and two populations using z and t distributions.

16. Interpret and make inferences based upon hypothesis tests using appropriate statistics terminology.
17. Translate results of inferential statistics into everyday language.

New Resources for Course

Course Textbooks/Resources

Textbooks
Navidi, W. and Monk B.. *Elementary Statistics (Enhanced edition with eBook & Connect Access)*, 3rd ed. McGraw Hill, 2019
Manuals
Periodicals
Software

Equipment/Facilities

Level III classroom
Other: calculator emulator software (such as TI-84 Plus SmartView and/or statistics software as specified by math department)

Reviewer	Action	Date
Faculty Preparer:		
Robert Klemmer	*Faculty Preparer*	*Sep 17, 2019*
Department Chair/Area Director:		
Lisa Manoukian	*Recommend Approval*	*Sep 17, 2019*
Dean:		
Victor Vega	*Request Conditional Approval*	*Sep 26, 2019*
Curriculum Committee Chair:		
Lisa Veasey	*Recommend Approval*	*Dec 04, 2019*
Assessment Committee Chair:		
Shawn Deron	*Recommend Approval*	*Dec 17, 2019*
Vice President for Instruction:		
Kimberly Hurns	*Approve*	*Dec 18, 2019*

Washtenaw Community College Comprehensive Report

MTH 160 Basic Statistics
Effective Term: Winter 2018

Course Cover

Division: Math, Science and Engineering Tech
Department: Mathematics
Discipline: Mathematics
Course Number: 160
Org Number: 12200
Full Course Title: Basic Statistics
Transcript Title: Basic Statistics
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Time Schedule , Web Page
Reason for Submission: Three Year Review / Assessment Report
Change Information:
    Outcomes/Assessment
    Objectives/Evaluation
Rationale: The syllabus has been updated to reflect the Winter 2017 course assessment. That assessment was done early after the department put in place the requirement that all online final exams be proctored.
Proposed Start Semester: Winter 2018
Course Description: In this course, students will use elementary statistics to achieve statistical literacy. Emphasis is on interpretation and evaluation of statistical results. Broad topics include descriptive statistics, basic probability theory and inferential statistics. Specific topics include describing data sets graphically and numerically, measures of center and spread, bivariate data and least squares regression, correlation, random variables, basic probability distributions, confidence intervals and hypothesis tests. A graphing calculator is required for this course. See the time schedule for current brand and model.

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Requisites

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Assoc in Science - Area 3
Assoc in Arts - Area 3
MACRAO Science & Math
Michigan Transfer Agreement - MTA
MTA Mathematics

Request Course Transfer
Proposed For:

Student Learning Outcomes

1. Interpret common statistical concepts and demonstrate critical consumption of statistical information.
    Assessment 1
    Assessment Tool: Common final exam questions
    Assessment Date: Winter 2021
    Assessment Cycle: Every Three Years
    Course section(s)/other population: All course sections
    Number students to be assessed: 20% representative random sample of students completing the assessment instrument in each course section
    How the assessment will be scored: The selected set of common questions for this outcome from the paper and online versions of the approved department final exam will be matched and scored with a rubric
    Standard of success to be used for this assessment: 70% of students will score at least 70% on the selected set of questions assessed for this outcome
    Who will score and analyze the data: Course mentor (coordinator)/department faculty

2. Interpret, plan, produce and apply descriptive statistics.
    Assessment 1
    Assessment Tool: Common final exam questions
    Assessment Date: Winter 2021
    Assessment Cycle: Every Three Years
    Course section(s)/other population: All
    Number students to be assessed: 20% representative random sample of students completing the assessment instrument in each course section
    How the assessment will be scored: The selected set of common questions for this outcome from the paper and online versions of the approved department final exam will be matched and scored with a rubric
    Standard of success to be used for this assessment: 70% of students will score at least 70% on the selected set of questions assessed for this outcome
    Who will score and analyze the data: Course mentor (coordinator)/department faculty

3. Interpret and apply probability, discrete probability distributions and common continuous probability distributions.

Assessment 1

Assessment Tool: Common final exam questions

Assessment Date: Winter 2021

Assessment Cycle: Every Three Years

Course section(s)/other population: All

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Standard of success to be used for this assessment: 70% of students will score at least 70% on the selected set of questions assessed for this outcome

Who will score and analyze the data: Course mentor (coordinator)/department faculty

4. Interpret, plan, produce and apply inferential statistics.

Assessment 1

Assessment Tool: Common final exam questions

Assessment Date: Winter 2021

Assessment Cycle: Every Three Years

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Manuals
Periodicals
Software

Equipment/Facilities

Level III classroom
Other: calculator emulator software (such as TI-84 Plus SmartView and/or statistics software as specified by math department)

Reviewer	Action	Date
Faculty Preparer:		
James Egan	*Faculty Preparer*	*Jun 27, 2017*
Department Chair/Area Director:		
Lisa Rombes	*Recommend Approval*	*Jul 12, 2017*
Dean:		
Kristin Good	*Recommend Approval*	*Jul 13, 2017*
Curriculum Committee Chair:		
Lisa Veasey	*Recommend Approval*	*Sep 27, 2017*
Assessment Committee Chair:		
Michelle Garey	*Recommend Approval*	*Sep 28, 2017*
Vice President for Instruction:		
Kimberly Hurns	*Approve*	*Oct 05, 2017*