2021

STEM Online Course Auto-Report

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Western Michigan University – Improving Undergraduate STEM Education

For this survey, we will be asking questions regarding one of your online STEM courses. <u>Please reference only one course while completing this survey,</u> such as the most recent online STEM course you taught.

Demo1. Please provide the following course information:

Course Name: _____   [The text entered in the
Course Number (e.g., BIO 101): _____   "Course Name" box is used
Department: _____   throughout the survey.]
Total Number of Students: _____

Demo2. How many times have you taught this course online?
_____

Demo3. What type of institution is your course offered through?
  ○ Public
  ○ Private

Demo4. What is the highest degree awarded by your institution?
  ○ Doctoral Degree
  ○ Master's or Post-Grad Specialist Degree
  ○ Bachelor's Degree
  ○ Associate's Degree

Some of the following questions include the term "Learning Management System." This refers to the online system used as a platform for online courses at your institution. Common systems include Desire to Learn (D2L), Blackboard, Moodle, and Canvas. There are other brands and your university may use a different name, such as "Elearning."

LMS1. What learning management system is used for [COURSE NAME]? If you do not know the name of your learning management system, please write "I don't know" in the space provided.
_____

The following questions ask about your online course structure. When discussing course structure, the term "module" will refer to how you chose to break up your course for online presentation. For the purpose of this survey, please refer to a module from a student perspective.

LMS2. How would you define a module in [COURSE NAME]?

_____
_____
_____
_____
_____

LMS3. How many modules does [COURSE NAME] feature?

_____

LMS4. If I were to observe your course (e.g., review a few modules rather than all of the modules), how many modules would I need to observe to understand the range of course materials, assessments, assignments, and discussions featured in [COURSE NAME]?

_____

The following questions relate to your course design and organization within your online STEM course ([COURSE NAME]).

G1. Do you communicate course goals? For example, intended learning outcomes or objectives.
   ○ No
   ○ Yes

G2. Do you post news/updates? For example, posting a notification regarding updated grades or posting any relevant resources related to course goals/learning objectives that students might find helpful or interesting.
   ○ No
   ○ Yes

G3. Do you communicate important time frames for learning activities? For example, using reminders or a course schedule.
   ○ No
   ○ Yes

G4. Do you provide guidelines for communication? For example, guidelines for collaborative discussions or for communicating with the instructor.
   ○ No
   ○ Yes

G5. Do you provide instruction on how to participate in learning activities? For example, modeling or
providing an outline of activity expectations for students.
   ○ No
   ○ Yes

G6. Do you integrate current events into course topics?
- ○ No
- ○ Yes

[If "No" was selected for question G2, skip question G7]

G7. Please indicate where you post news/updates within your course. (Please select all that apply)
- ☐ Designated discussion board
- ☐ Designated page/section
- ☐ Email to entire class

[If "No" was selected for question G3, skip question G8]

G8. Please indicate where you highlight important time frames within your course. (Please select all that apply)
- ☐ Syllabus
- ☐ Course calendar
- ☐ Checklist
- ☐ News item/announcement in LMS
- ☐ Dedicated page/section/file within the LMS
- ☐ Email to entire class
- ☐ Other: _____

[If "No" was selected for question G4, skip question G9]

G9. Please indicate where you post guidelines for communication within your course. (Please select all that apply)
- ☐ Syllabus
- ☐ News item/announcement section in LMS
- ☐ Dedicated page/section/file within the LMS
- ☐ Email to entire class
- ☐ Other: _____

[If "No" was selected for question G5, skip question G10]

G10. Please indicate where you post instructions on how to participate in learning activities within your course. (Please select all that apply)
- ☐ Syllabus
- ☐ News item/announcement section in LMS
- ☐ Dedicated page/section/file within the LMS
- ☐ Email to entire class
- ☐ Other: _____

[If "No" was selected for question G1, skip question G11]

G11. Please indicate where you communicate course goals within your course. (Please select all that apply)
- ☐ Syllabus
- ☐ News item/announcement section in LMS
- ☐ Dedicated page/section/file within the LMS
- ☐ Goals are listed throughout the course
- ☐ Email to entire class
- ☐ Other: _____

[If "No" was selected for question G6, skip question G12]

G12. Please indicate where you communicate important course updates/news. (Please select all that apply)
- ☐ Syllabus
- ☐ News item/announcement section in LMS
- ☐ Dedicated page/section/file within the LMS
- ☐ Email to entire class
- ☐ Other: _____

The following questions relate to the course materials you use in your online STEM course ([COURSE NAME]).

CM1. Do you assign a required textbook or book?
- ○ No
- ○ Yes

CM2. Do you require students to purchase/obtain a course packet?
- ○ No
- ○ Yes

CM3. Do you assign lecture notes or slides?
- ○ No
- ○ Yes

CM4. Do you assign any additional text-based materials? If so, please indicate the type of course material below. If not, please write "No additional materials" in the space provided.

_____

CM5. Do you assign images or illustrations?
- ○ No
- ○ Yes

CM6. Do you assign slide presentations with audio narration?
- ○ No
- ○ Yes

CM7. Do you assign other audio material?
- ○ No
- ○ Yes

CM8. Do you assign video material?
- ○ No
- ○ Yes

CM9. Do you require students to purchase and use a laboratory kit or list?
- ○ No
- ○ Yes

CM10. Do you use physical or virtual models in your teaching?
- ○ No
- ○ Yes

CM11. Do you require students to interact with simulations/visualization websites or software?
- ○ No
- ○ Yes

CM12. Please indicate any additional course materials you assign in your online STEM course ([COURSE NAME]). If you do not have any additional materials types, please write "No more material" in the space provided.

_____
_____
_____
_____
_____

LMS - Learning Management System - refers to the online system used as a platform for online courses at your institution. Common systems include Desire to Learn (D2L), Blackboard, Moodle, and Canvas. There are other brands and your university may use a different name, such as "Elearning."

CM13. Do you use websites or apps other than the LMS for student assignments or activities? If so, what websites do you use?
(Please consider only interactive content in your response. Videos and readings should not be included. For example, a video hosted on YouTube would not count, and neither would linking to an article on the New York Times website.)

_____

The following questions will relate to the course-specific modifications of your course materials.

CM14. Was this previously an in-person course that has been moved online?
- ○ No
- ○ Yes

[If "No" was selected for question CM14, skip question CM15. Rows in CM15 each correspond to answers in CM1 to CM11, and rows that are not applicable based on negative responses to the previous questions may be skipped.]

CM15. For the following course materials, please indicate the level of modification you provided to each course material.

	No Modifications	Slightly Modified	Sometimes Modified	Very Modified	Completely Modified
Textbook or book	○	○	○	○	○
Course packet	○	○	○	○	○
Lecture notes or slides	○	○	○	○	○
Other text-based materials featured in your course	○	○	○	○	○
Images or illustrations	○	○	○	○	○
Slides with audio narration	○	○	○	○	○
Standalone audio material	○	○	○	○	○
Video material	○	○	○	○	○
Laboratory kit or materials	○	○	○	○	○
Physical or virtual models	○	○	○	○	○
Simulation/visualization website or software	○	○	○	○	○

The following questions relate to the course assignments you use in your online STEM course ([COURSE NAME]).

A1. Do you assign written assignments? For example, a written assignment can be a short-answer question, essay, or research paper.
- ○ No
- ○ Yes

A2. Do you assign math problems?
- ○ No
- ○ Yes

A3. Do you nomenclature/vocabulary assignments?
- ○ No
- ○ Yes

A4. Do you assign problem-solving scenarios? For example, trying to find solutions to real-world problems in assignments.
- ○ No
- ○ Yes

A5. Do you assign synchronous video meetings? For example, meeting with the class through video conferencing in real-time on systems like Zoom, WebEx, Discord or Skype.
- ○ No
- ○ Yes

A6. Do you assign student presentations? For example, submitted media (audio or screen share, etc.) to present or discuss findings.
- ○ No
- ○ Yes

A7. Do students complete laboratory assignments from either a kit that you provide or that they assemble based on a list?
- ○ No
- ○ Yes

A8. Do you assign discussion forums? For example, student-to-student discussions to further understanding of course topics.
- ○ No
- ○ Yes

A9. Do you assign quizzes? For example, weekly or bi-weekly multiple-choice assessments.
- ○ No
- ○ Yes

A10. Do you assign exams? For example, end of unit assessments, mid-term exams, etc.
- ○ No
- ○ Yes

A11. Do you assign videos of student work? For example, submitting a step-by-step process of solving a mathematical problem.
- ○ No
- ○ Yes

A12. Please indicate any additional course assignments you use in your online STEM course ([COURSE NAME]). If you do not have any other course assignments, please write"No more assignments" below.

_____
_____
_____
_____
_____

The following questions relate to the course assignments you use in your online STEM course ([COURSE NAME]). These responses will feature terms such as "group work," "formative," and "summative."

<u>Group work</u> is defined as collaborative student work focused on a product. Discussions are, by themselves, not considered group work.

<u>Formative assessments</u> include non-graded, lower risk assignments that provide immediate feedback to monitor student progress.

<u>Summative assessments</u> include graded, higher risk assignments that evaluate student progress and contribute to final outcomes.

[Some responses in A13 to A16 correspond to some of the answers in A1 to A12 and may optionally be not displayed in they are not applicable. Because A13 to A16 have only "select all that apply" responses, leaving these responses present when not applicable will not cause any problems.]

A13. Please select all of the assignments that are individual activities. For example, students are not allowed to work or collaborate with other students when completing these activities. (Please select all that apply)
- ☐ Written assignments
- ☐ Math problems or nomenclature
- ☐ Problem-solving scenarios
- ☐ Student projects
- ☐ Student presentations
- ☐ Laboratory assignments
- ☐ Quizzes
- ☐ Exams
- ☐ Video of student performance/work
- ☐ Other

A14. Please select all of the assignments that are group activities. For example, students are encouraged to work or collaborate with other students when completing these activities. (Please select all that apply)
- ☐ Written assignments
- ☐ Math problems or nomenclature
- ☐ Problem-solving scenarios
- ☐ Synchronous video meetings
- ☐ Student projects
- ☐ Student presentations
- ☐ Laboratory assignments
- ☐ Quizzes
- ☐ Exams
- ☐ Video of student performance/work
- ☐ Other

A15. Please select all of the assignments that are formative assessments. For example, these activities allow for immediate feedback to monitor student progress. (Please select all that apply)
- ☐ Written assignments
- ☐ Math problems or nomenclature
- ☐ Problem-solving scenarios
- ☐ Synchronous video meetings
- ☐ Student projects
- ☐ Student presentations
- ☐ Laboratory assignments
- ☐ Quizzes
- ☐ Exams
- ☐ Video of student performance/work
- ☐ Discussion forums
- ☐ Other

A16. Please select all of the assignments that are summative assessments. For example, these activities evaluate student progress and are typically graded. (Please select all that apply)
- ☐ Written assignments
- ☐ Math problems or nomenclature
- ☐ Problem-solving scenarios
- ☐ Synchronous video meetings
- ☐ Student projects
- ☐ Student presentations
- ☐ Laboratory assignments
- ☐ Quizzes
- ☐ Exams
- ☐ Video of student performance/work
- ☐ Other

[If "No" was selected for question A8, skip to question F1.]

The following questions relate to the discussion forums you use in your online STEM course ([COURSE NAME]).

Disc1. Do you contribute, other than an initial prompting question, in your discussion forums for [COURSE NAME]?
- ○ No
- ○ Yes

Disc2. What is your level of involvement in student-to-student discussions in your online STEM discussion forums for your course ([COURSE NAME])?
- ○ Not at all
- ○ A little
- ○ Somewhat
- ○ Very
- ○ Extremely

Disc3. Do you or a teaching assistant moderate participation of students in your discussion forums (e.g., draws out inactive students/limits dominating students)?
- ○ No
- ○ Yes

The following questions relate to the discussion forums you use in your online STEM course ([COURSE NAME]).

[If "No" was selected for question Disc1, skip to question F1.]

Disc4. How would you describe the frequency of your contributions, other than an initial prompting question, in your discussion boards?
- ○ Not at all involved
- ○ Not much involved
- ○ Not involved
- ○ Involved
- ○ Somewhat involved
- ○ Very involved

Disc5. Do you contribute to course discussions by adding information to a discussion? For example, providing additional resources in a discussion thread.
- ○ No
- ○ Yes

Disc6. Do you contribute to course discussions by building a consensus to a discussion? For example, navigating discussions in order to find a common theme.
- ○ No
- ○ Yes

Disc7. Do you contribute to course discussions by summarizing a discussion? For example, combining discussion components into a concise description.
- ○ No
- ○ Yes

Disc8. Do you contribute to course discussions by diagnosing misconceptions within a discussion? For example, identifying misconceptions within a thread.
- ○ No
- ○ Yes

Disc9. Do you contribute to course discussions by providing encouragement within a discussion? For example, giving students feedback using words that indicate your support or encouragement.
- ○ No
- ○ Yes

Disc10. Please indicate any additional ways you contribute to course discussions in your online STEM course ([COURSE NAME]). If you do not have any other contribution methods, please write "No more methods" below.

_____

The following questions relate to the frequency of your contributions in your discussion forums.

Disc11. Please describe how often you contribute to discussion forums for the following reasons.

	Never	Rarely	Some-times	Often	Always
Adding information to a discussion (e.g., providing additional resources in a discussion thread)	○	○	○	○	○
Building a consensus to a discussion (e.g., clarifying discussions in order to emphasize a common theme)	○	○	○	○	○
Summarizing a discussion (e.g., combining discussion components into a concise description)	○	○	○	○	○
Diagnosing misconceptions within a discussion (e.g., identifying where students are mistaken within a thread)	○	○	○	○	○
Providing encouragement within a discussion (e.g., expressing recognition or appreciation of contributions of students)	○	○	○	○	○
Identifying and clarifying areas of agreement and disagreement on course topics to help students learn	○	○	○	○	○
Guiding the class towards understanding course topics in a way to help the student clarify their thinking	○	○	○	○	○
Keeping students engaged and participating in productive dialogue	○	○	○	○	○
Keeping students on task	○	○	○	○	○

Encouraging course participants to explore new concepts associated with the course	○	○	○	○	○
Reinforcing the development of a sense of community among course participants	○	○	○	○	○
Focusing the discussion back to relevant issues to help student learning	○	○	○	○	○

The following questions relate to the feedback you provide in your online STEM course ([COURSE NAME]).

F1. Do you provide feedback to your students in your online STEM course?
- ○ No
- ○ Yes

F2. Do you set expectations for your activities or assignments in your online STEM course? (For example, providing rubrics or example student projects)
- ○ No
- ○ Yes

[If "No" was selected for question F1, skip to question F9.]

F3. Please indicate which activities you provide feedback for within your online STEM course. (Please select all that apply)
- ☐ Written assignments
- ☐ Math problems or nomenclature
- ☐ Problem solving scenarios
- ☐ Synchronous video meetings
- ☐ Student projects
- ☐ Student presentations
- ☐ Laboratory assignments
- ☐ Quizzes
- ☐ Exams
- ☐ Video of student performance/work
- ☐ Discussion forums
- ☐ Other [TEXT FROM A12 RESPONSE]

F4. Please indicate on which activities you provide individualized feedback. (Please select all that apply)
- ☐ Written assignments
- ☐ Math problems or nomenclature
- ☐ Problem solving scenarios
- ☐ Synchronous video meetings
- ☐ Student projects
- ☐ Student presentations
- ☐ Laboratory assignments

□ Quizzes
□ Exams
□ Video of student performance/work
□ Discussion forums
□ Other [TEXT FROM A12 RESPONSE]

F5. Please indicate on which activities you provide feedback to the whole class written in response to their work. (Please select all that apply)
□ Written assignments
□ Math problems or nomenclature
□ Problem solving scenarios
□ Synchronous video meetings
□ Student projects
□ Student presentations
□ Laboratory assignments
□ Quizzes
□ Exams
□ Video of student performance/work
□ Discussion forums
□ Other [TEXT FROM A12 RESPONSE]

F6. Please indicate on which activities you provide generic individual feedback, such as scores on a rubric. (Please select all that apply)
□ Written assignments
□ Math problems or nomenclature
□ Problem solving scenarios
□ Synchronous video meetings
□ Student projects
□ Student presentations
□ Laboratory assignments
□ Quizzes
□ Exams
□ Video of student performance/work
□ Discussion forums
□ Other [TEXT FROM A12 RESPONSE]

F7. Please indicate on which activities you provide generic whole class feedback, such as a pre-written conclusion made available after the work is complete. (Please select all that apply)
□ Written assignments
□ Math problems or nomenclature
□ Problem solving scenarios
□ Synchronous video meetings
□ Student projects
□ Student presentations
□ Laboratory assignments
□ Quizzes

    ☐ Exams
    ☐ Video of student performance/work
    ☐ Discussion forums
    ☐ Other [TEXT FROM A12 RESPONSE]

F8. How long does it typically take to provide feedback to students?
    ○ Less than 1 business day
    ○ 1 - 2 business days
    ○ More than 2 business days

[If "No" was selected for question F2, skip to question F10.]

F9. In which ways do you communicate expectations to your students in your online STEM course? (Please select all that apply)
    ☐ Rubric
    ☐ Outline of expectations without grading information
    ☐ Examples of student projects
    ☐ Response to individual questions
    ☐ Other ways not listed

F10. Please indicate how often you provide newly written whole class feedback for the following activities.

	Never	Very rarely	Rarely	Some-times	Almost always	Always	N/A (this activity not used)
Written assignments	○	○	○	○	○	○	○
Math problems or nomenclature	○	○	○	○	○	○	○
Problem solving scenarios	○	○	○	○	○	○	○
Synchronous video meetings	○	○	○	○	○	○	○
Student projects	○	○	○	○	○	○	○
Student presentations	○	○	○	○	○	○	○
Laboratory assignments	○	○	○	○	○	○	○
Quizzes	○	○	○	○	○	○	○
Exams	○	○	○	○	○	○	○
Video of student performance/work	○	○	○	○	○	○	○
Discussion forums	○	○	○	○	○	○	○
Other [TEXT FROM A12 RESPONSE]	○	○	○	○	○	○	○

F11. Please indicate how often you provide individualized feedback for the following activities.

	Never	Very rarely	Rarely	Some-times	Almost always	Always	N/A (this activity not used)
Written assignments	○	○	○	○	○	○	○
Math problems or nomenclature	○	○	○	○	○	○	○
Problem solving scenarios	○	○	○	○	○	○	○
Synchronous video meetings	○	○	○	○	○	○	○
Student projects	○	○	○	○	○	○	○
Student presentations	○	○	○	○	○	○	○
Laboratory assignments	○	○	○	○	○	○	○
Quizzes	○	○	○	○	○	○	○
Exams	○	○	○	○	○	○	○
Video of student performance/work	○	○	○	○	○	○	○
Discussion forums	○	○	○	○	○	○	○
Other [TEXT FROM A12 RESPONSE]	○	○	○	○	○	○	○

F12. Please indicate how often you provide generic individual feedback for the following activities.

	Never	Very rarely	Rarely	Some-times	Almost always	Always	N/A (this activity not used)
Written assignments	○	○	○	○	○	○	○
Math problems or nomenclature	○	○	○	○	○	○	○
Problem solving scenarios	○	○	○	○	○	○	○
Synchronous video meetings	○	○	○	○	○	○	○
Student projects	○	○	○	○	○	○	○
Student presentations	○	○	○	○	○	○	○
Laboratory assignments	○	○	○	○	○	○	○
Quizzes	○	○	○	○	○	○	○
Exams	○	○	○	○	○	○	○

Video of student performance/work	○	○	○	○	○	○	○
Discussion forums	○	○	○	○	○	○	○
Other [TEXT FROM A12 RESPONSE]	○	○	○	○	○	○	○

F13. Please indicate which how often you provide generic whole class feedback for the following activities.

	Never	Very rarely	Rarely	Some-times	Almost always	Always	N/A (this activity not used)
Written assignments	○	○	○	○	○	○	○
Math problems or nomenclature	○	○	○	○	○	○	○
Problem solving scenarios	○	○	○	○	○	○	○
Synchronous video meetings	○	○	○	○	○	○	○
Student projects	○	○	○	○	○	○	○
Student presentations	○	○	○	○	○	○	○
Laboratory assignments	○	○	○	○	○	○	○
Quizzes	○	○	○	○	○	○	○
Exams	○	○	○	○	○	○	○
Video of student performance/work	○	○	○	○	○	○	○
Discussion forums	○	○	○	○	○	○	○
Other [TEXT FROM A12 RESPONSE]	○	○	○	○	○	○	○

[The following questions were included as part of a large-scale testing of this instrument. It may be appropriate to partially or fully omitted these questions when the instrument is used to gather data anonymously, or for individual (non-research) use.]

End1. What is your full name?   _____

End2. What is your primary appointment type?
   ○ Tenured
   ○ Tenure-track
   ○ Term
   ○ Part-time
   ○ Teaching Assistant
   ○ Other: _____

End3. How many years have you been teaching?

_____

End4. How many years have you been teaching online?

_____

End5. How do you describe you gender identity. (Please select all that apply)
- ☐ Female
- ☐ Male
- ☐ Genderqueer
- ☐ Agender
- ☐ Non-binary
- ☐ Transgender
- ☐ Cisgender
- ☐ A gender not listed (please specify): _____

End6. Within which racial and ethnic group(s) do you identify? (Please select all that apply)
- ☐ American Indian / Native American
- ☐ Asian
- ☐ Black or African American
- ☐ Hispanic, Latino, or Spanish origin
- ☐ Middle Eastern or North African
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ White
- ☐ Another race or ethnicity not listed above (Please specify): _____