



# **DATA COLLECTION INSTRUMENTS**

**INTERACTIVE LEARNING ONLINE AT PUBLIC UNIVERSITIES:**

**Evidence from Randomized Trials**

**Study Conducted in Fall 2011**

**Ithaka S+R**  
**[www.sr.ithaka.org](http://www.sr.ithaka.org)**

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## BASELINE STUDENT SURVEY

Please answer the following questions to the best of your ability. If you do not feel comfortable answering a question, you may skip it.

1. Which of the following best describes your prior exposure to statistics? (Please check one of the following.)

- I have had no prior classroom exposure to statistics before this course (STAT 101)
- Before college, I saw a little statistics as part of another course (for instance, some topics covered in a high-school math class).
- Before college, I took a whole statistics course but I did not take the AP Statistics exam.
- Before college, I took a whole statistics course and I took the AP Statistics exam.
- I took a whole college-level statistics course before this semester.
- Other (please specify): \_\_\_\_\_

2. Why are you taking this course (STAT 101)? (Please check one of the following.)

- Requirement for my department
- To fulfill a distribution/general education requirement
- Elective

3. Why did you volunteer to be entered into a lottery where you could end up taking this course (STAT 101) in a blended format? (Please check all that apply.)

- I prefer the blended format.
- Not having to buy a textbook was an important incentive.
- The \$50 incentive was an important incentive.
- I have little/no experience with blended courses, and I would be interested in trying this course in a blended format.
- Other (please specify) \_\_\_\_\_

4. Do you own a computer? (Please circle one of the following.)

- No            Yes, a desktop            Yes, a laptop            Yes, a desktop and a laptop

5. Do you have reliable internet access where you live? (Please circle one.)            Yes    No

6. Overall, how much time do you spend on course work EACH week for ALL of your courses outside of class? (Please check one of the following.)

- None
- Less than 1 hour
- 1-3 hours
- 4-6 hours
- 7-9 hours
- 10-12 hours
- 13-15 hours
- 16-20 hours
- Over 20 hours

7. How difficult do you expect this course (STAT 101) to be? (Please check one of the following.)

- Very easy
- Easy
- Moderate
- Difficult
- Very difficult

8. What is the highest level of education you expect to complete in the future? (Please check one of the following.)

- Take some college courses but not earn a certificate or degree
- Complete a program that is less than two years (such as a certificate program)
- Obtain an Associate's degree
- Obtain a Bachelor's degree
- Obtain a Master's degree or equivalent
- Obtain a Ph.D., M.D., or other advanced or professional degree
- Don't know

9. How many hours do you plan to work for pay (either on-campus or off-campus) this semester? (Please check one of the following.)

- I do not plan to work
- I plan to work 1-9 hours each week
- I plan to work 10-19 hours each week
- I plan to work 20-29 hours each week
- I plan to work 30-39 hours each week
- I plan to work 40 or more hours each week

10. What are your annual earnings from work? \_\_\_\_\_

11. What is your marital status? (Please circle one of the following.)

Single                      Married                      Separated or divorced                      Widowed

12. How many children do you have? (Please circle one of the following.)

I do not have any children                      One                      Two                      Three or more

13. Where do you live? (Please check one of the following.)

- On-campus housing
- I live with parent(s) or other family member
- I live independently alone or with roommates

14. Please indicate the highest level of education completed by your

Father (or male guardian):

Mother (or female guardian):

*(Please check one of the following.)*

*(Please check one of the following.)*

- |   |   |
|---|---|
| <input type="checkbox"/> Did not complete high school         | <input type="checkbox"/> Did not complete high school         |
| <input type="checkbox"/> High school diploma or equivalent    | <input type="checkbox"/> High school diploma or equivalent    |
| <input type="checkbox"/> Some college                         | <input type="checkbox"/> Some college                         |
| <input type="checkbox"/> Associate's or two-year degree       | <input type="checkbox"/> Associate's or two-year degree       |
| <input type="checkbox"/> Bachelor's or four-year degree       | <input type="checkbox"/> Bachelor's or four-year degree       |
| <input type="checkbox"/> Some graduate or professional school | <input type="checkbox"/> Some graduate or professional school |
| <input type="checkbox"/> Graduate or professional degree      | <input type="checkbox"/> Graduate or professional degree      |

15. What was the approximate combined income of your parents before taxes last year? (Please check one of the following.)

- Less than \$10,000
- \$10,000 to \$19,999
- \$20,000 to \$29,999
- \$30,000 to \$39,999
- \$40,000 to \$49,999
- \$50,000 to \$59,999
- \$60,000 to \$69,999
- \$70,000 to \$79,999
- \$80,000 to \$89,999
- \$90,000 to \$99,999
- \$100,000 to \$149,999
- \$150,000 or more

16. What language do you know best? (Please choose one of the following.)

- English
- English and another language about the same (please specify other language): \_\_\_\_\_
- Another language (please specify other language): \_\_\_\_\_

17. What month were you born? \_\_\_\_\_

18. What year were you born? \_\_\_\_\_

19. What is your gender? (Please circle one.)

Female

Male

20. What is your race/ethnicity? (Please check all that apply.)

- |   |  |
|---|--|
| <input type="checkbox"/> American Indian or Alaska Native | <input type="checkbox"/> Native Hawaiian or Other Pacific Islander |
| <input type="checkbox"/> Asian                            | <input type="checkbox"/> White                                     |
| <input type="checkbox"/> Black or African American        | <input type="checkbox"/> Other (please specify): _____             |
| <input type="checkbox"/> Hispanic or Latino               |  |

## END OF SEMESTER STUDENT SURVEY

### *Traditional-Format Version*

Please answer the following questions to the best of your ability. If you do not feel comfortable answering a question, you may skip it.

Your answers to these questions will be used for research purposes only. Your instructor will not see your responses to this survey.

1. On average, how many hours per week did you spend on coursework for STAT 101 outside of class?

\_\_\_\_\_ hours per week

2. Approximately what percentage of STAT 101 lectures did you attend??

\_\_\_\_\_ %

3. How much did STAT 101 increase your interest in the subject matter? (Please circle one of the following.)

Not at all      Very little      Some      Quite a bit      A great deal

4. How much did you learn in STAT 101 compared to other courses of the same level? (Please circle one of the following.)

Much less      Somewhat less      About the same      Somewhat more      Much more

5. Overall, how would you rate this course relative to a typical lecture-based course? (Please circle one of the following.)

Much worse      Somewhat worse      About the same      Somewhat better      Much better

6. How difficult did you find STAT 101? (Please circle one of the following.)

Very easy      Easy      Moderate      Difficult      Very difficult

7. Do you have any other comments you would like to share about this course?



## END OF SEMESTER STUDENT SURVEY

### *Hybrid-Format Version*

Please answer the following questions to the best of your ability. If you do not feel comfortable answering a question, you may skip it.

Your answers to these questions will be used for research purposes only. Your instructor will not see your responses to this survey.

1. On average, how many hours per week did you spend on coursework for STAT 101 outside of the weekly face-to-face sessions?

\_\_\_\_\_ hours per week

2. How much did STAT 101 increase your interest in the subject matter? (Please circle one of the following.)

Not at all          Very little          Some          Quite a bit          A great deal

3. How much did you learn in STAT 101 compared to other courses of the same level? (Please circle one of the following.)

Much less          Somewhat less          About the same          Somewhat more          Much more

4. Overall, how would you rate this course relative to a typical lecture-based course? (Please circle one of the following.)

Much worse          Somewhat worse          About the same          Somewhat better          Much better

5. How difficult did you find STAT 101? (Please circle one of the following.)

Very easy          Easy          Moderate          Difficult          Very difficult

6. How would you evaluate the following technical aspects of the online course?  
(Please circle one of the following for (a)-(g) below.)

- |  |           |      |      |      |
|--|-----------|------|------|------|
| (a) Access to the website and authentication                                   | Excellent | Good | Fair | Poor |
| (b) Navigations through the course website                                     | Excellent | Good | Fair | Poor |
| (c) Ease of finding specific information                                       | Excellent | Good | Fair | Poor |
| (d) Ease of using stats package (Minitab/<br>R/Excel/TI calculator/StatCrunch) | Excellent | Good | Fair | Poor |
| (e) Technical support when difficulties arise                                  | Excellent | Good | Fair | Poor |
| (f) Graphical design   | Excellent | Good | Fair | Poor |
| (g) Running of interactive environments  | Excellent | Good | Fair | Poor |

7. What statistical software package did you use most often in the course? (Please circle one of the following.)

Minitab                  R                  Excel                  TI calculator                  StatCrunch

8. How often did you have serious technical difficulties (e.g., server was down, page would not load after repeated attempts, a quiz would not work, etc.)? (Please circle one of the following.)

Never                  Once or twice                  Often                  Very often

9. What features of the online course did you find most helpful? (Please check all that apply.)

- Checkpoints
- "Did I Get This?" activities
- Learn by Doing activities
- StatTutor activities
- Instant feedback and hints
- Self-assessments
- Being able to submit comments/questions to the instructor
- Stats software package (Minitab/R/Excel/calculator/StatCrunch)
- Written explanations
- Scheduling flexibility
- Ability to work at own pace
- Not having to buy a textbook for the course
- Other (please specify): \_\_\_\_\_

10. Approximately what percentage of the face-to-face sessions did you attend? \_\_\_\_\_ %

11. For those face-to-face sessions you chose not to attend, what were the primary reasons for not attending? (Check all that apply.)

- I had to work.
- I had a conflict with another class or school activity.
- I was busy with non-school activities or responsibilities (other than work).
- I did not think the sessions would be worthwhile.
- I have such a long commute that it was not worth it to attend.
- Other (please specify): \_\_\_\_\_

12. For those face-to-face sessions you did choose to attend, please rate, on a scale from 1 (not at all important) to 4 (very important), the importance of each factor below in your decision to attend.

	1 (not at all important)	2	3	4 (very important)	does not apply
Attendance was part of my grade	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My instructor offered me extra credit or some other incentive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My instructor's explanations of the material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Getting answers to specific questions I had about the course	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Going over practice or homework problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engaging in class discussions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reviewing for midterms or final exams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Doing other activities (specify below in comments section)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OVERALL value of the face-to-face sessions in helping you understand the course material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

13. How satisfied were you with how well the checkpoint quizzes in each unit assessed your understanding of the material? (Please circle one of the following.)

Very dissatisfied    Somewhat dissatisfied    Neutral    Somewhat satisfied    Very satisfied

14. What features of the course do you feel could be improved?

15. Do you have any other comments you would like to share about STAT 101?

## INSTRUCTOR QUESTIONNAIRE

### *Traditional-Format Version*

**To be administered at the end of the semester to all instructors teaching one or more traditional-format sections of STAT 101 with study participants**

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#### Background

1. How many years of experience do you have teaching at the college level (including your experience teaching in fall 2011)?
2. Are you a part-time or a full-time instructor?
3. What other courses, if any, did you teach in fall 2011?
4. What academic responsibilities, if any, did you have in fall 2011 outside of teaching?
5. How many times have you taught an introductory statistics course (including your experience teaching in fall 2011)?
6. How many times have you taught this particular statistics course (including your experience teaching in fall 2011)?
7. Please briefly describe your experience with teaching online courses (or courses with a significant online component).
8. Which of the following best describes your academic rank at Towson during the fall 2011 semester?
  - Professor
  - Associate professor (with tenure)
  - Associate professor (without tenure)
  - Assistant professor
  - Adjunct professor
  - Graduate assistant
  - Other rank (please specify): \_\_\_\_\_

#### Introductory statistics class

9. How many sections of intro stats did you teach this semester?

10. For each of the sections you taught:

- a. What was the format (OLI vs. traditional vs. other type of online course)?
- b. How many students were enrolled?
- c. What time(s) did the section meet?
- d. What percentage of students typically attended the weekly face-to-face sessions?

11. What forms of technology or social media, if any, did you use to teach or communicate with your students? (This might include Learning Management Systems like Blackboard, email, clickers, Twitter, Facebook, Skype, e-textbooks or textbook publisher websites, etc.) How did you use these forms of technology and social media?

12. How frequently did you communicate with your students outside of class?

- Several times a day
- Not daily but a few times a week
- Not weekly but a few times a month, rarely
- Only a few times throughout the semester
- Never

Comments:

13. What types of assignments did you give over the course of the semester?

14. One way this study compared learning outcomes between the OLI and traditional sections was through a set of common questions on the final exam. This question asks you to assess how well those common final exam questions matched the material you taught in your section.

- The common exam questions adequately reflected the material I taught in my section.
- The common exam questions mostly reflected the material I taught, with a few exceptions (check one or both boxes):
  - There were a few common exam questions that covered material I did not teach in my section.
  - There were a few topics I taught in my section that were not covered by the common exam questions.
- There was a significant mismatch between the common exam questions and the material I taught in my section (check one or both boxes):
  - There were many common exam questions that covered material I did not teach in my section.
  - There were many topics I taught in my section that were not covered by the common exam questions.

Please comment on any areas of mismatch between what you taught and what was covered by the common exam questions:

15. What percentage of students contacted you or came to you for extra help at some point during the semester?
16. What percentage of the class time do you spend on each of the following activities:
  - a. lecturing
  - b. answering questions from students
  - c. engaging in class discussions
  - d. going over practice or homework problems
  - e. doing other activities (please specify)

## INSTRUCTOR QUESTIONNAIRE

### *Hybrid-Format Version*

**To be administered at the end of the semester to all instructors teaching one or more hybrid-format sections of STAT 101 with study participants**

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#### Background

1. How many years of experience do you have teaching at the college level (including your experience teaching in fall 2011)?
2. Are you a part-time or a full-time instructor?
3. What other courses, if any, did you teach in fall 2011?
4. What academic responsibilities, if any, did you have in fall 2011 outside of teaching?
5. How many times have you taught an introductory statistics course (including your experience teaching in fall 2011)?
6. How many times have you taught this particular statistics course (including your experience teaching in fall 2011)?
7. Please briefly describe your experience with teaching online courses (or courses with a significant online component).
8. Which of the following best describes your academic rank at Towson during the fall 2011 semester?
  - Professor
  - Associate professor (with tenure)
  - Associate professor (without tenure)
  - Assistant professor
  - Adjunct professor
  - Graduate assistant
  - Other rank (please specify): \_\_\_\_\_

#### Introductory statistics class

9. How many sections of intro stats did you teach this semester?



10. For each of the sections you taught:

- a. What was the format (OLI vs. traditional vs. other type of online course)?
- b. How many students were enrolled?
- c. What time(s) did the section meet?
- d. What percentage of students typically attended the weekly face-to-face sessions?

11. What forms of technology or social media, if any, did you use to teach or communicate with your students? (This might include Learning Management Systems like Blackboard, email, clickers, Twitter, Facebook, Skype, e-textbooks or textbook publisher websites, etc.) How did you use these forms of technology and social media?

12. How frequently did you communicate with your students outside of class?

- Several times a day
- Not daily but a few times a week
- Not weekly but a few times a month, rarely
- Only a few times throughout the semester
- Never

Comments:

13. What types of assignments did you give over the course of the semester?

14. One way this study compared learning outcomes between the OLI and traditional sections was through a set of common questions on the final exam. This question asks you to assess how well those common final exam questions matched the material you taught in your section.

- The common exam questions adequately reflected the material I taught in my section.
- The common exam questions mostly reflected the material I taught, with a few exceptions (check one or both boxes):
  - There were a few common exam questions that covered material I did not teach in my section.
  - There were a few topics I taught in my section that were not covered by the common exam questions.
- There was a significant mismatch between the common exam questions and the material I taught in my section (check one or both boxes):
  - There were many common exam questions that covered material I did not teach in my section.
  - There were many topics I taught in my section that were not covered by the common exam questions.

Please comment on any areas of mismatch between what you taught and what was covered by the common exam questions:

15. What percentage of students contacted you or came to you for extra help at some point during the semester?
16. How many times (including this semester) have you taught introductory statistics using the OLI course? \_\_\_\_\_
17. The following questions concern the weekly face-to-face sessions.
  - a. How long did the weekly face-to-face sessions usually last?
  - b. How useful did you find the weekly face-to-face sessions?
  - c. What percentage of the face-to-face time did you spend on each of the following activities?
    - i) lecturing
    - ii) answering questions from students
    - iii) engaging in class discussions
    - iv) going over practice or homework problems
    - v) doing other activities (please specify)
  - d. Was the instructor feedback data from the OLI course helpful in allowing you to use the face-to-face time most efficiently? Why or why not?
18. How well did the OLI curriculum align with the intro stats curriculum that is normally taught in this course?
19. The following questions concern the performance of students using OLI course.
  - a. How well did your students do, overall, in the OLI course, compared to what you expected?
  - b. If you have taught the course in the traditional format before, how well did your students do compared with the students you have taught in the past using the traditional format?
20. To the best of your knowledge, what did your students think of the OLI course?

21. The following questions concern your opinion of the OLI course.

The OLI courseware incorporates a variety of different features, including checkpoints, “Did I Get This?” activities, “Learn By Doing” activities, StatTutor activities, presentation/ organization of material, instant feedback/hints for students, instructor’s digital dashboard, solicitation of open-ended comments from students, self-assessments for students, etc.

- a. What features of the OLI course did you like or find particularly helpful?
- b. What features of the OLI course did you dislike?
- c. What recommendations, if any, do you have for the developers of the OLI course?

23. Compared with traditional, face-to-face introductory statistics courses you have previously taught, please indicate how time-consuming the OLI course was in terms of:

	The OLI course was...				
	much more work	somewhat more work	same amount of work	somewhat less work	much less work
Course planning and preparation prior to the start of the semester	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Preparing for class each week	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Responding to student emails	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interacting with students in person outside of class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Preparing quizzes and exams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grading assignments and exams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OVERALL assessment of time spent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

24. Imagine a situation in which you have adopted a sophisticated hybrid course like the OLI course as your regular mode of teaching introductory statistics and, after using the course for several years, you have become very familiar with it. In that hypothetical future situation, how time-consuming do you think teaching introductory statistics would be, compared with the way you have taught the course (in the traditional face-to-face format) in the past?

- The hybrid course would be much more work.
- The hybrid course would be somewhat more work.
- The hybrid course would be about the same amount of work.
- The hybrid course would be somewhat less work.
- The hybrid course would be much less work.

## INSTITUTIONAL RESEARCH OFFICE DATA

The following data was requested from the institutional research office for all students taking STAT 101 during the fall 2011 semester.

1. Student ID number that can be used to link records from various sources (random ID number created for the purposes of the project)
2. Month and year of birth
3. SAT verbal and math scores or ACT scores (if available), and/or placement test scores (if available)
4. High school GPA
5. Race/ethnicity
6. Gender
7. Family income (only available for students that completed a FAFSA)
8. Secondary school identification code
9. Month and year of high school graduation
10. Whether student matriculated as a freshmen or transfer student
11. Year in college (freshmen, sophomore, etc.)
12. Total number of credits earned as of beginning of semester in which experiment takes place
13. Cumulative college GPA as of beginning of semester in which experiment takes place
14. Home state
15. Home zip code
16. Does student pay in-state or out-of-state tuition?
17. Amount of grants the student is receiving in the current academic year (and/or in the prior academic year, if current year data are not yet available)
18. Amount of loans the student is receiving in the current academic year (and/or in the prior academic year, if current year data are not yet available)
19. Is student enrolled in an honors program or honors college?
20. Is student enrolled in a particular program, academic unit, school or college within the university?
21. What is the student's major field of study (if declared)?
22. Is student enrolled full- or part-time?
23. How many credits is the student taking?
24. STAT 101 course grade