Semester: Spring 2019
Course: MAE4120 - Item Response Theory
Participating students: 16
Answering frequency: 10/16 (63%)
Date: 2019-05-22

Examination results (MAE4120)

Number of students examined: 16

A: 0 (0%)
B: 6 (38%)
C: 5 (31%)
D: 3 (19%)
E: 1 (6%)
F: 1 (6%)

Summary of student viewpoints and suggestions

The evaluation was conducted anonymously via Nettskjema after the exam but before the exam results were given. The evaluation form consisted of the parts *Course topic emphasis*, *Work load*, *Assignments*, *Exam,* and *Overall*. In the following, the main viewpoints reflecting the student comments are given.

Course topic emphasis

- More on how which methods to use with which types of data and how to deal with missing data
- Fewer technical details and more focus on applications
- Emphasize ability estimation and introduce item parameter estimation
- Elaborate more on the calculations that are needed for the exam
- De-emphasize explanatory item response theory

Work load

- Work load ranged from 20 to 50 hours per week

Assignments

Strengths

- Good for learning and relevant content
- Interesting and good focus on applications
- Helpful for practicing the methods and for gaining confidence
- Suitable difficulty level
- Improved the skills in R
- Reflective of course learning outcomes

Weaknesses

- Difficult to know what was expected
- Timing of last assignment was in conflict with other activities

- Not enough support from the teacher for the early assignments and sometimes unclear answers
- Not enough time with the final assignment
- Not enough feedback on the assignments

Exam

- Not clear beforehand what would be required regarding calculations
- Exam format not reflective of real usage of IRT, without Internet access and textbook
- Exam preparation conflicted with deadline of assignment in another course
- Some unexpected questions

Overall

Strengths

- Good structure to the course and well-planned lectures
- Individual assignments
- Teacher available for questions and quick responses
- Strong emphasis on understanding and implication
- Providing R code was helpful
- Good balance of lectures and labs
- Instructor was well-prepared for lectures and had good time management

Suggestions for improvement

- Provide lecture slides earlier to be able to go through them beforehand and print out
- Provide a database with good examples of IRT research
- Organize Q and A sessions before the exam in smaller groups to allow for everyone to ask questions
- Include assignment results in the final grade
- Focus on basic knowledge in some of the seminars
- More student input on the examination format
- Consider other textbooks that are more targeted to introductory IRT
- Slower pace of the course and consider splitting the course into a basic and advanced level course
- Co-ordinate assignment deadlines and exam dates better across different courses

Comments from course director/teachers on the implementation and outcome of the course

This was the first time the course was given, and hence there are no previous course evaluations to consider.

The course is an introduction to item response theory (IRT) with a strong emphasis on different types of applications of IRT in the social sciences, while still providing a fairly strong level of technical detail. In the course, students are introduced to general IRT models for binary and ordinal data and how tools in

IRT can be used to evaluate students, infer group differences, construct scales and tests and to investigate hypotheses regarding item properties or the relationship between performance and covariates. The course mainly focuses on unidimensional IRT. Several methods for model and item fit evaluation are also discussed. The course involves teaching in the form of lectures which introduces the topics and areas of applications, computer labs which allow for using the methods in practical situations and seminars which allow the students to present IRT studies and results of IRT analyses.

The course was generally well-regarded, with the assignments and the overall structure as the highlights. The administrative aspects of the course appear to have worked satisfactorily and the learning outcomes were met, according to the respondents. All but one respondent would recommend the course, according to the evaluation. The exam drew the most criticism, with several students suggesting that the exam was not reflective of the overall course emphasis. Regarding the course emphasis, some students desired less emphasis on technical aspects whereas other students wanted more details on aspects such as estimation methods. Hence, there was a wide range of opinions among the body of students regarding the emphasis. The assignments were well-received and the focus on applications of IRT was appreciated. Some students suggested providing additional help for the assignments. The results from the assignments suggested that the level of understanding and the level of ambition varied greatly within the student group. Some students struggled with basic data management and were lacking in experience using R. The mathematical content of the course was generally not high but some calculations were needed for the exam. Several students struggled with this aspect of the course, in particular in relation to the exam. In large part I am in agreement with the comments regarding the exam format and suggest changes to the examination in future courses as outlined below.

Proposed changes/comments/measures

- Keep the main emphasis in the course but provide additional focus on the basics of IRT
- Reduce the emphasis on calculations by hand
- Keep the current structure with lectures, labs and seminars
- Extend the course a few weeks to allow for a slightly slower pace and additional time to work on the final assignment
- Re-work the examination format to include a pass/fail multiple choice exam with a final individual assignment graded A-F, similar to the final assignment of the present course but more extensive
- Keep the assignments largely as they are today but provide additional time for the final assignment
- Have clearer guidelines regarding what is expected from the assignments

Björn Andersson,
Responsible teacher