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| **Assurance of Student Learning Report****2020-2021** |
| *Gordon Ford College of Business* | *Economics* |
| *Graduate Certificate in Economic Data Analytics - 0491* |
| *Dr. David Zimmer, Graduate Program Director; Dr. Alex Lebedinsky, Department Chair* |

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| ***Use this page to list learning outcomes, measurements, and summarize results for your program. Detailed information must be completed in the subsequent pages.*** |
| **Student Learning Outcome 1:**  Students will demonstrate ability to apply econometric modeling techniques to study real-world questions. |
| **Instrument 1** | Direct: Course project in ECON 465G – Regression and Econometrics |
| **Based on your results, check whether the program met the goal Student Learning Outcome 3.**  | **[x]  Met** | **[ ]  Not Met** |
| **Student Learning Outcome 2:** Students will demonstrate appropriate data skills necessary to conduct economic research.  |
| **Instrument 1** | Direct: Targeted assignments in ECON 506 – Applied Statistical Methods |
| **Based on your results, check whether the program met the goal Student Learning Outcome 4.** | **[x]  Met** | **[ ]  Not Met** |
| **Student Learning Outcome 3:**  Students will demonstrate knowledge of statistical tools necessary to conduct economic research.  |
| **Instrument 1** | Direct: Targeted assignments in ECON 506 – Applied Statistical Methods |
| **Based on your results, check whether the program met the goal Student Learning Outcome 5.**  | **[x]  Met** | **[ ]  Not Met** |
| **Program Summary (Briefly summarize the action and follow up items from your detailed responses on subsequent pages.)**  |
| This 12-hour program is embedded in the MA in Applied Economics and it shares courses and learning objectives with that program. Typically, This assessment is based on those students who are enrolled in the certificate program, which includes the students who were enrolled in the MA program + certificate and the students who were enrolled only in the certificate. During the current assessment cycle, there were no students enrolled in the certificate, so the report is based on the MA students who were enrolled in the classes normally used for the certificate. All three learning objective have been met.  |

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| **Student Learning Outcome 3** |
| **Student Learning Outcome**  | Students will demonstrate ability to apply econometric modeling techniques to study real-world questions. |
| **Measurement Instrument 1** | Direct measures of student learning: One of the core courses in the MA in Applied Economics (0410) is Regression and Econometrics (ECON465G), which is also one of the research methods courses in the program. During the course, students learn a variety of econometric techniques. At the end of the course, students have to complete a project during which they have to identify the appropriate econometric technique to study the assigned problem, perform required calculations and interpret their results. This project served as the instrument for measuring this learning objective. Specifically, the following items were assessed: 1. Was the student able to formulate the research question in terms of the appropriate econometric model? 2. Was the student able to perform necessary calculations to estimate the model? 3. Did the student correctly interpret the estimation results? |
| **Criteria for Student Success** | At the end of the program, students should be able to perform at the level of Capstone (4) or Milestone (3) according to *LEAP Quantitative Literacy* rubric. |
| **Program Success Target for this Measurement** | 80% | **Percent of Program Achieving Target** | 100% |
| **Methods** | The data were collected from all the graduate students enrolled in the ECON 465G course during the spring 2020 semesters (N=7). The instructor of the course rated students’ projects on the three criteria listed above using a 1-4 scale for each criterion. The scores were assigned based on LEAP Quantitative Literacy rubric items (1) Representation, (2) Calculation, (3) Application/Analysis. Using this rubric, an average score over these three items was computed for each student |
| **Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 3.**  | **[x]  Met** | **[ ]  Not Met** |
| **Actions** (Describe the decision-making process and actions for program improvement. The actions should include a timeline.) |
| Compared with the previous assessment cycle, there is an improvement on this SLO: During the last academic year, 92.3 gained proficiency levels of 3 or higher. The material in this class is continuously updated to include the changes in research methodology accepted in the economic profession, so even maintain the same level of performance on this metric reflects an in increase in the students’ performance.  |
| **Follow-Up** (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.) |
| We will continue to monitor performance of students on this SLO. This cycle was based on unusually small sample. The next year we expect more students in this class and a larger sample will allow us to see if successful performance during this year was a one-off or if there is evidence of continuous improvement.  |
| **Next Assessment Cycle Plan** (Please describe your assessment plan timetable for this outcome) |
| This outcome is assessed on annual basis, so the next assessment cycle will take place 2021-2022. During the next assessment cycle, we will use the same rubric for consistency and because it provides us with a detailed data on students’ performance. The artifacts, again, will be students’ papers in ECON 465G course. The data will be gathered by the instructor of the ECON 465G course.  |

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| **Student Learning Outcome 4** |
| **Student Learning Outcome**  | Students will demonstrate appropriate data skills necessary to conduct economic research. |
| **Measurement Instrument 1** | Direct: Targeted assignments in ECON 506 – Applied Statistical Methods course. Among the assignment given throughout the course, students were required to complete assignments that measured their competency in choosing and using the appropriate data skills necessary to perform subsequent data analysis. Skills addressed included importing data into statistical software, data management skills (e.g. merging, subsetting datasets) etc. |
| **Criteria for Student Success** | Upon completion of the program, students should perform at the Intermediate or Advanced level.  |
| **Program Success Target for this Measurement** | 80% | **Percent of Program Achieving Target** | 84.6 (11/13)% |
| **Methods** | At the end of the instructor of the ECON 506 course assessed the knowledge of the students on the following scale: 1 – Beginner 2 – Beginner + 3 – Intermediate 4 – Advanced. The ratings are intended to mirror the Calculation item in the LEAP Quantitative Literacy rubric. The data are collected from all of the students in the fall 2021 ECON 506 course (N=13), a core course in the MA in Applied Economics. |
| **Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 3.** | **[x]  Met** | **[ ]  Not Met** |
| **Actions** (Describe the decision-making process and actions for program improvement. The actions should include a timeline.) |
| The data indicate that there was an improvement compared to the previous year when only 66.7% of the students meth the goal. While we are not sure to what to attribute this success, two potential explanations emerge: (1) Greater emphasis on quantitative skills on undergraduate level led to better preparedness of the students; (2) Hybrid and online teaching methods we were forced to adopt during the COVID-19 pandemic may actually generate some unexpected benefits for teaching quantitative courses.  |
| **Follow-Up** (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.) |
| We will continue to incorporate some of the pedagogical techniques developed during pandemic upon return to face-to-face instruction to determine if they benefit students.  |
| **Next Assessment Cycle Plan** (Please describe your assessment plan timetable for this outcome) |
| This outcome is assessed on annual basis, so the next assessment cycle will take place 2021-2022. During the next assessment cycle, we will use the same rubric for consistency and because it provides us with a detailed data on students’ performance. The artifacts, again, will be targeted assignments in ECON 506 course. The data will be gathered by the instructor of the ECON 506 course.  |

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| **Student Learning Outcome 5** |
| **Student Learning Outcome**  | Students will demonstrate knowledge of statistical tools necessary to conduct economic research.  |
| **Measurement Instrument 1** | Direct: Targeted assignments in ECON 506 – Applied Statistical Methods course. Among the assignment given throughout the course, students were required to complete assignments that measured their competency in choosing and using the appropriate statistical tools necessary to conduct analysis of economic data.  |
| **Criteria for Student Success** | Upon completion of the program, students should perform at the Intermediate or Advanced level.  |
| **Program Success Target for this Measurement** | 80% | **Percent of Program Achieving Target** | 100% |
| **Methods** | At the end of the instructor of the ECON 506 course assessed the knowledge of the students on the following scale: 1 – Beginner 2 – Beginner + 3 – Intermediate 4 – Advanced. The ratings are intended to mirror the Calculation item in the LEAP Quantitative Literacy rubric. The data are collected from all of the students in the ECON 506 course (N=13), a core course in the MA in Applied Economics. |
| **Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 5.**  | **[x]  Met** | **[ ]  Not Met** |
| **Actions** (Describe the decision-making process and actions for program improvement. The actions should include a timeline.) |
| Similar to SLO 4, the data indicate improvement compared to the previous year when only 66.7% of the students met the goal. As with SLO 4, we are not sure what led to the improvement, but we suspect that new pedagogies we were forced to adopt during the pandemic might have generated unexpected benefits.  |
| **Follow-Up** (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.) |
| We will continue to incorporate some of the pedagogical techniques developed during pandemic upon return to face-to-face instruction to determine if that benefits students.  |
| **Next Assessment Cycle Plan** (Please describe your assessment plan timetable for this outcome) |
| This outcome is assessed on annual basis, so the next assessment cycle will take place 2021-2022. During the next assessment cycle, we will use the same rubric for consistency and because it provides us with a detailed data on students’ performance. The artifacts, again, will be targeted assignments in ECON 506 course. The data will be gathered by the instructor of the ECON 506 course.  |

SLO 1 Rubric

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|   | **Capstone** | **Milestones** | **Benchmark** |
|   | **4** | **3** | **2** | **1** |
| **Representation**Ability to convert relevant information into various mathematical forms (e.g., equations, graphs, diagrams, tables, words)*LEAP Quantitative Literacy* | Skillfully converts relevant information into an insightful mathematical portrayal in a way that contributes to a further or deeper understanding. | Competently converts relevant information into an appropriate and desired mathematicalportrayal. | Completes conversion of information but resulting mathematical portrayal is only partially appropriate or accurate. | Completes conversion of information but resulting mathematical portrayal is inappropriate or inaccurate. |
| **Calculation** | Calculations attempted are essentially all successful and sufficiently comprehensive tosolve the problem. Calculations are also presented elegantly (clearly, concisely, etc.) | Calculations attempted are essentially all successful and sufficiently comprehensive to solve the problem. | Calculations attempted are either unsuccessful or represent only a portion of the calculations required to comprehensively solve the problem. | Calculations are attempted but are both unsuccessful and are not comprehensive. |
| **Application/Analysis**Ability to make judgments and draw appropriate conclusions based on the quantitative analysis of data, while recognizing the limits of this analysis*LEAP Quantitative Literacy* | Uses the quantitative analysis of data as the basis for deep and thoughtful judgments, drawing insightful, carefully qualified conclusions fromthis work. | Uses the quantitative analysis of data as the basis for competent judgments, drawing reasonableand appropriately qualified conclusions from this work. | Uses the quantitative analysis of data as the basis for workmanlike (without inspiration or nuance,ordinary) judgments, drawing plausible conclusions from this work. | Uses the quantitative analysis of data as the basis for tentative, basic judgments, although is hesitant or uncertain about drawing conclusionsfrom this work. |