



# TLEF Project – Final Report

Report Completion Date: (YYYY/MM/DD)

## 1. PROJECT OVERVIEW

### 1.1. General Information

<b>Project Title:</b>	Data Analysis and Statistics with STATA - Online Resources for Undergraduate Programs		
<b>Principal Investigator:</b>	Nisha Malhotra		
<b>Report Submitted By:</b>	Nisha Malhotra		
<b>Project Initiation Date:</b>	01 April 2017	<b>Project Completion Date:</b>	31 March 2019
<b>Project Type:</b>	<input type="checkbox"/> Large Transformation <input checked="" type="checkbox"/> <b>Small Innovation</b> <input checked="" type="checkbox"/> Flexible Learning <input type="checkbox"/> Other: [please specify]		

### 1.2. Project Focus Areas – Please select all the areas that describe your project.

**Resource development (e.g. learning materials, media)**

Infrastructure development (e.g. management tools, repositories, learning spaces)

**Pedagogies for student learning and/or engagement (e.g. active learning)**

Innovative assessments (e.g. two-stage exams, student peer-assessment)

Teaching roles and training (e.g. teaching practice development, TA roles)

Curriculum (e.g. program development/implementation, learning communities)

Student experience outside the classroom (e.g. wellbeing, social inclusion)

Experiential and work-integrated learning (e.g. co-op, community service learning)

Indigenous-focused curricula and ways of knowing

Diversity and inclusion in teaching and learning contexts

Open educational resources

Other: [please specify]



### 1.3. Project Summary

The goal of this project was to develop online resources that enhance conceptual understanding and statistical computing skills for students in economics and beyond.

Screencast tutorials are a useful tool to teach statistical soft wares like STATA, and can be used in a “blended learning” approach to teaching. Making video tutorials available to students before class allows them to review the basic concepts beforehand. Conducting quantitative research requires both an understanding of statistical concepts and techniques as well as knowledge and skills required when using statistical software. We will create learning objects that aid in both tasks and which create a direct link between the two types of knowledge. These resources will aid learning in introductory statistics courses (e.g. Econ 325, Poli 380) and upper level courses featuring the use of statistics in original research projects (Econ 490, Poli 492). We will create learning modules with each focusing on one major concept covered in Econ 325 and its application in Econ 490. Our modular resources will be easy to adapt in other courses using STATA.

**1.4. Team Members** – Please fill in the following table and include students, undergraduate and/or graduate, who participated in your project.

Name	Title/Affiliation	Responsibilities/Roles
Nisha Malhotra	PI	Rest
Jaycee Tolent	RA	Editing video tutorials
Regina Adshade	RA	Website editing

**1.5. Courses Reached** – Please fill in the following table with past, current, and future courses and sections (e.g. HIST 101, 002, 2017/2018, Sep) that have been/will be reached by your project, including courses not included in your original proposal (you may adapt this section to the context of your project as necessary).

Course	Section	Academic Year	Term (Summer/Fall/Winter)
Econ490	4 sections	2017	Fall/Winter
Econ490	4 sections	2018	Fall/Winter
Econ490	2 sections	2019	Fall
Econ325	1 section	2017	fall



**2. OUTPUTS AND/OR PRODUCTS**

**2.1.** Please **list** project outputs and/or products (e.g. resources, infrastructure, new courses/programs). Indicate the current location of such products and provide a URL if applicable.

Product(s)/Achievement(s):	Location:
Video Tutorials- STATA Software	<a href="https://blogs.ubc.ca/datawithstata/videos/">https://blogs.ubc.ca/datawithstata/videos/</a>
Econometrics Review	<a href="https://blogs.ubc.ca/datawithstata/home-page/regression/">https://blogs.ubc.ca/datawithstata/home-page/regression/</a>
Research Methodology - Details/Procedures	<a href="https://blogs.ubc.ca/datawithstata/home-page/research/">https://blogs.ubc.ca/datawithstata/home-page/research/</a>
Solved Examples	<a href="https://blogs.ubc.ca/datawithstata/home-page/stata/">https://blogs.ubc.ca/datawithstata/home-page/stata/</a>

**2.2. Item(s) Not Met** – Please list intended project outputs and/or products that were not attained and the reason(s) for this.

Item(s) Not Met:	Reason:
Poli Sci content	

**3. PROJECT IMPACT**

**3.1. Project Impact Areas** – Please select all the areas where your project made an impact.

**Student learning and knowledge**

**Student engagement and attitudes**

Instructional team teaching practice and satisfaction

Student wellbeing, social inclusion

Awareness and capacity around strategic areas (indigenous, equity and diversity)

Unit operations and processes

Other: [please specify]



**3.2. What were you hoping to change or where were you hoping to see an impact with this project? – Please describe the intended benefits of the project for students, TAs, instructors and/or community members.**

*These resources will support and enhance student learning in a number of ways: 1) they facilitate 6 of 11 the use of alternative instructional methods such as flipped classrooms, 2) they provide an efficient method for students in upper-level courses (Econ 490; Econ 457) to review the pre-requisite analytic methods covered in Econ 325/ Econ326 they reduce time spent reviewing these concepts in upper-level courses, giving instructors more time to help students master more challenging material.*

The resources would support and enhance learning not only in statistics and data analysis, but also in the use of statistical software STATA and, will be easy to adapt in other classes across UBC.

We hope that this project will provide a foundation on which blended learning course can be developed in the future. VSE is considering changes in the fourth year graduating course and these resources might pave the way to incorporate flexible learning approach in the new curriculum. These resources will also aid students in applied quantitative research courses. These tools will also be useful for instructors within and outside UBC.

**3.3. Were these changes/impacts achieved? How do you know they occurred? – What evaluation strategies were used? How was data collected and analyzed? You are encouraged to include copies of data collection tools (e.g. surveys and interview protocols) as well as graphical representations of data and/or scenarios or quotes to represent and illustrate key themes.**

**A. From anecdotal data** and conversing with students and other faculty members - we have learned that a large number of students look for video tutorials and prefer to use this interactive mode to written explanations in the textbook. I have also analyzed usage data of videos that show multiple views by users. (Anecdotal data: student evaluations and facebook pages for this course and emails from students (can be made available on request)

**B. Student Focus Group** (29<sup>th</sup> March 2018)

Objective: To gain Student's experiences with the Resources and Incorporate these to modify the content

Method: Informal Discussions

Moderator: Nisha Malhotra, Anand Chopra

Number of Participants: 4 Students Registered in Econ490

Report is attached in the Appendix.

**3.4. Dissemination – Please provide a list of past and upcoming scholarly activities (e.g. publications, presentations, invited talks, etc.) in which you or anyone from your team have shared information regarding this project.**

A. Vancouver School of Economics: Internal dissemination of the material.

- Emailed Links and Resources
- Presentation to Faculty teaching Econ490



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- Used as a resource for new faculty to teach the material
- Discussion with the Faculty teaching 3<sup>rd</sup> years: Potential to become part of a curriculum for review

B. Land and Food Systems: Resources were shared with the faculty via email.

C. Online Resources: Accessed by learners outside the university.

**4. TEACHING PRACTICES** – Please indicate if ***your*** teaching practices or those of ***others*** have changed as a result of your project. If so, in what ways? Do you see these changes as sustainable over time? Why or why not?

I was able to free up to 15% of class time with these online modules; Students watch video tutorials in order to review basic concepts before class, and practice STATA before coming to class. Although students had been taught these concepts in their pre-requisite classes I still had to review them before subsequent lectures but now I no longer need to revisit this material during class time. With more class time available, students can then engage in problem-solving during lecture time.

**5. PROJECT SUSTAINMENT** – Please describe the sustainment strategy for the project components. How will this be sustained and potentially expanded (e.g. over the next five years). What challenges do you foresee for achieving the expected long-term impacts listed above?

There might be upgrades to the STATA software, which would need to be mentioned, and over time as the software changes there will be a need to update some of the videos. I think time would be the main constraint.



## APPENDIX

### Focus Group report

#### Feedback:

- Students had mostly seen the page on Regression with dummy variable and looked at logit and probit models. They had difficulty in interpreting the coefficients that the model produces. They were not sure what was meant by odds ratio and what the Stata output was displaying.
- They needed more input on when to use a logit model vs. a multinomial logit model.
- They wanted to see an example of each type of model.

#### Improvement:

- To address the first point, interpretation of the coefficient and explaining the Stata output was added to each model for the pages Regression with dummy variable, Ordinary Least Squares and Panel Regression which are the widely used economic models. In each of these cases, an example relevant to the model was created, the Stata code and output was provided along with the interpretation of the Stata output.
- To address the second and third point, an example was created to explain each model individually and then another example was used to explain which model to use in what situation.

#### Students involved:

- Ye Liu
- Zijian Jiao
- Justin Thompson
- Guanyu Xing