

## **Master of Public Policy and Global Affairs – Overview of Recommended Courses to Demonstrate Knowledge in Microeconomics, Macroeconomics and Statistics/Quantitative Methods**

[The Master of Public Policy and Global Affairs \(MPPGA\)](#) is a 20-month professional program offered at the University of British Columbia (UBC) in Vancouver, B.C. The first year of the program requires students to follow mandatory core courses across a wide range of disciplines, including communications, economics, quantitative methods, and public management.

The MPPGA Program Office highly recommends applicants demonstrate knowledge of microeconomics, macroeconomics and statistics/quantitative methods **at the introductory level** at a post-secondary institution, preferably taken within the last 3 years. At minimum, we would like applicants to have the level of economics or statistics/quantitative methods knowledge normally acquired from a 100-level (1<sup>st</sup> year) introductory course. This is to prepare for the following courses:

- **GPP 501 – Microeconomics Analysis for Public Policy**
- **GPP 502 - International Macroeconomics**
- **GPP 503 – Measurement and Data Analysis for Policy**

The MPPGA Program Office has conducted research across a multitude of undergraduate programs around the world that specialize in economics, applied social sciences and statistics. Such an inquiry has been motivated by the need to gather a comprehensive and international data set that can help prospective students understand which academic courses (offered in person or online, e.g. Coursera, Edx, MITOpenCourseWare) might be the most suitable vis-à-vis the MPPGA program's recommendations.

Furthermore, as the MPPGA Program Office will welcome a growing number of international students, we have included at least one university per continent, accounting for the idiosyncrasies that we have observed across higher-education systems. In the end, after compiling the information present in our data set, we were able to assess some particular trends that have proven to be relevant regarding the program's recommendations.

The list of worldwide courses could also serve as a reference database in order to resolve concerns from prospective students who may be unsure about the validity and relevance of their own academic backgrounds, independently of the continent or region that they are from.

## **GPP 501 – Microeconomics Analysis for Public Policy**

- At least one university-level course in microeconomics (basic principles of economics could not be seen as sufficient),
  - Microeconomics courses adapted to social sciences are not eligible, need to be taught from a Department of Economics,
  - Elementary or pre-university mathematics needed,
  - One or two semesters of university-level mathematics (first year) highly recommended, i.e. differential and multivariable calculus, linear algebra.
- ➔ If a 3-year undergraduate program (mostly across Europe, Asia and Oceania), we would suggest at least first year courses in microeconomics or principles of economics focused on microeconomics (e.g. “Introduction to Microeconomics” or “Microeconomics I”, while “Intermediate Microeconomics” could be seen as more technical and thus optional before applying to the MPPGA program).
- ➔ If a 4+-year undergraduate program (North and South America), then we recommend at least 2<sup>nd</sup> year microeconomics courses (e.g. “Intermediate Microeconomic theory I” or “Introduction to Microeconomics” in some instances, while “Intermediate Microeconomics II” could be seen as more technical).
- ❖ Brief overview of recommended Microeconomics knowledge
- Introduction and applications related to the concepts of Supply & Demand,
  - Notion of elasticity (quantitative understanding as well),
  - Understanding of general economic equilibrium, under perfect competition and imperfect competition,
  - Alternative market structures, such as monopoly and oligopoly,
  - Study of the individual’s consumption choices or consumer theory (preferences, utility...),
  - Study of the firm’s production decisions or production theory (production function, labour, physical capital, human capital...),
  - Introduction to market imperfections: externalities, public goods, asymmetry of information...
  - Government interventions (taxes, subsidies...).

## **GPP 502 - International Macroeconomics**

- At least one university-level course in Macroeconomics,
  - One or two semesters of university-level mathematics (first year) are highly recommended, i.e. differential and multivariable calculus, linear algebra,
  - Prior knowledge of Microeconomics is recommended before taking a course in Macroeconomics.
- ➔ If a 3-year undergraduate program (mostly across Europe, Asia and Oceania), we would suggest at least first year courses in macroeconomics or principles of economics focused on macroeconomics (e.g. “Introduction to Macroeconomics” or “Macroeconomics I”, while “Intermediate Macroeconomics” could be seen as more technical and thus optional before applying to the MPPGA program).

➔ If a 4+-year undergraduate program (North and South America), then we suggest at least 2<sup>nd</sup> year macroeconomics courses (e.g. “Intermediate Macroeconomic theory I” or “Introduction to Macroeconomics” in some instances, while “Intermediate Macroeconomics II” could be seen as more technical).

❖ Brief overview of suggested Macroeconomics knowledge

- Determination of the level of national income, savings and investment,
- National accounting, deflators, consumer price index (CPI),
- Understanding the relationship and interconnections between key macroeconomic variables,
- Study the behaviour of the aggregate economy in the short-run and in the the long-run,
- Exchange rates, inflation, unemployment,
- Growth theory, with some knowledge of the Solow model,
- Static general equilibrium for a closed and open economy (with the dynamic component being optional),
- Business cycle theory,
- IS-LM Model, Phillips curve, AD-AS,
- Balance of payments,
- Fiscal and monetary policies,
- Introduction to international trade.

### **GPP 503 – Measurement and Data Analysis for Policy**

- At least one university-level course in statistics (& probability) or quantitative methods in Economics
- One or two semesters of university-level mathematics (first year) highly recommended, i.e. differential and multivariable calculus, linear algebra.

➔ If a 3-year undergraduate program (mostly across Europe, Asia and Oceania), we suggest at least first year courses in statistics (& probability) or quantitative methods in Economics (e.g. “Introduction to Statistics” or “Statistics I” or “Introduction to Quantitative methods for Economics”, while “Introduction to Econometrics” could be seen as more technical).

➔ If a 4+-year undergraduate program (North and South America), then we suggest at least 2<sup>nd</sup> year statistics (& probability) courses (e.g. “Descriptive Statistics and Probability” or “Statistics and Data analysis for Economics” for instance, while Econometrics courses can be seen as more technical).

❖ Brief overview of recommended Statistics (& probability) knowledge

- Descriptive statistics: measures of central tendency and dispersion,
- Understanding of different types of variables: continuous, discrete and dichotomous,
- Able to demonstrate great Excel skills, while prior knowledge of Stata and R could be considered as valuable assets,
- Histogram, box plots, scatter plots (theoretical understanding & application via Excel),

- Probability theory: independence, conditionality, Bayes' theorem...
- Random experiment and Randomized Control Trials (RCTs),
- Binomial distribution, hypergeometric distribution, the Poisson distribution, the normal distribution...
- Bivariate distributions: notions of covariance and correlation,
- Statistical inference: t-tests, goodness of fit, confidence intervals and hypothesis testing, p-value, statistical power,
- Introduction to regression models (multivariate regression being optional)

## Examples of Economics & Statistics Online Courses

**Note:** This list is not inclusive; other online options are available. Taking courses at a post-secondary institution is certainly an acceptable route as well.

### ❖ **Microeconomics**

- *University of Illinois at Urbana-Champaign - "Microeconomics Principles"*
  - o No recommended background; Takes into account the major keywords and features required to enter the microeconomics class.

- o <https://www.coursera.org/course/microecon>

- *University of California, Irvine - "The Power of Microeconomics : Economic Principles in the Real World"*

- o No recommended background; Equivalent of a term of introductory microeconomics

- o Components not necessary: monopolistic competition, land and rent, labor and capital markets

- o <https://www.coursera.org/learn/principles-of-microeconomics/>

### ❖ **Macroeconomics**

- *University of California, Irvine - "The Power of Macroeconomics : Economic Principles in the Real World"*

- o No recommended background; equivalent to a semester of introductory macroeconomics

- o Cover a comprehensive set of basic macroeconomics concepts, although some sections would not be mandatory, or viewed as a complementary to GPP 502

- o <https://www.coursera.org/learn/principles-of-macroeconomics>

- *The University of Melbourne - "Principles of Macroeconomics"*

- o No economics background required; will cover the basic knowledge of National and International economy features.

- o <https://www.coursera.org/course/macroeconomics>

- *Massachusetts Institute of Technology – "Principles of Macroeconomics"*

- o No recommended background

- o Our main interest will be related to the core lectures in macroeconomics

- o <http://ocw.mit.edu/courses/economics/14-02-principles-of-macroeconomics-spring-2014/index.htm>

## ❖ **Statistics**

- *University of Toronto - "Statistics: Making sense of Data"*

- No recommended background; introduction to descriptive statistics, probabilities and linear regression.

- <https://www.coursera.org/course/introstats>

- *University of Amsterdam - "Basic Statistics"*

- No recommended background; a basic introduction of descriptive statistics

- <https://www.coursera.org/learn/basic-statistics>

- *University of Zurich - "Introduction to Statistics for the Social Sciences"*

- No recommended background; three main axes (i) descriptive statistics, (ii) probability theory & (iii) inferential statistics.

- <https://www.coursera.org/course/statistics101>

- *University of Berkeley - "Introduction to Statistics : Descriptive Statistics"*

- <https://www.edx.org/course/introduction-statistics-descriptive-uc-berkeleyx-stat2-1x#!>

- *University of Berkeley - "Introduction to Statistics: Probability"*

- A bit more advanced than others: High-school arithmetic and review of descriptive statistics (such as graphical representations, notions of centrality and spread, basic knowledge of the normal curve).

- <https://www.edx.org/course/introduction-statistics-probability-uc-berkeleyx-stat2-2x#!>

- *University of Notre Dame - "I 'Heart' Stats: learning to love statistics"*

- No recommended background; Highlights: data identification and interpretations, graphical representations, choice of statistical tests, comprehension of a basic bivariate relationship.

- <https://www.edx.org/course/i-heart-stats-learning-love-statistics-notredamex-soc120x#!>