DATA ANALYTICS & QUANTITATIVE ANALYSIS

The specialization in Data Analytics and Quantitative Analysis (DAQA) provides opportunities to pursue advanced work in computational and data analytics, econometrics and quantitative analysis and to apply these techniques to a broad array of policy and management issues.

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Poranee ‘Pam’ Kingpetcharat, Lecturer of International and Public Affairs (part-time)
Rebecca Krisel, Lecturer of International and Public Affairs (part-time)
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Sharyn O’Halloran, George Blumenthal Professor; Professor of International and Public Affairs (on leave)
Nuria Oliver, Adjunct Professor of International and Public Affairs
Stephanie Rosoff, Lecturer in the Discipline of International and Public Affairs
Ebonya Washington, Professor of International and Public Affairs
Douglas Williamson, Adjunct Associate Professor of International and Public Affairs
Alan Yang, Senior Lecturer in the Discipline of International and Public Affairs
Mike Zhu, Adjunct Assistant Professor of International and Public Affairs
Visit our SIPA Faculty Directory to view bios

The specialization in Data Analytics and Quantitative Analysis (DAQA) requires 9 points, consisting of one required three-point course, and six-points in either quantitative analysis or data analytics electives.

In addition to these requirements, DAQA students are required to complete the SIPA U6400 / SIPA U6401 sequence of economics in the MIA and MPA core and SIPA U6500 Quantitative Analysis I for International and Public Affairs to qualify for the DAQA Specialization. Additionally, students must earn a minimum grade of B-

in SIPA U6400 and SIPA U6500. It is strongly recommended that students complete SIPA U6500 during their first semester.

Questions should be directed to Marie Gugnishev, Coordinator of the DAQA Specialization, at mg4441@columbia.edu.

DAQA Pre-Requisites
• SIPA U6400 Microeconomic Analysis for International and Public Affairs*
• SIPA U6401 Macroeconomic Analysis for International and Public Affairs
• SIPA U6500 Quantitative Analysis I for International and Public Affairs*

*Minimum grade requirement of B-

DAQA Requirements
• SIPA U6501 Quantitative Analysis II for International and Public Affairs
• 3 Credits of an Advanced Course
• 3 Credits of electives approved by the Specialization Director

International Economic Policy Concentration Students
Due to International Economic Policy requiring SIPA U6501 as a core course, students in this concentration must instead take an additional DAQA elective course to fulfill specialization requirements for a total of 9 credits in DAQA electives:
• 3 credits in an Advanced Course
• 6 credits in electives approved by the Specialization Director

SIPA Students Matriculated Prior to Fall 2022
Continuing DAQA students can choose any course from the Advanced Course and SIPA Electives course lists respectively to their Data Analytics or Quantitative Analytics Focus Area to fulfill their credit requirements.

Required Course
SIPA U6501 Quantitative Analysis II for International and Public Affairs 3.00

Quantitative Analysis Focus Area

Advanced Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Points</th>
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<tbody>
<tr>
<td>INAF U6599</td>
<td>Quant III: Labor Economics For Policy Students 3.00</td>
</tr>
<tr>
<td>INAF U6604</td>
<td>Applied Econometrics 3.00</td>
</tr>
<tr>
<td>INAF U6608</td>
<td>Economics of Education Policy 3.00</td>
</tr>
<tr>
<td>INAF U6614</td>
<td>Data Analysis for Policy Research Using R 3.00</td>
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</tbody>
</table>
INAF U8145  Advanced Economic Development for International Affairs  3.00
INAF U8305  Conducting Empirical Research in Economics  3.00
INAF U8360  Economic Measurement of Discrimination  3.00
PEPM U6640  Macroeconometrics  3.00
PUAF U8516  Time Series Analysis  3.00
SIPA U8500  Quantitative Methods in Program Evaluation and Policy Research  3.00

**SIPA Electives**

INAF U6016  Cost-Benefit Analysis  3.00
INAF U6098  Financial Risk Management and Public Policy  3.00
INAF U6301  Corporate Finance  3.00
INAF U6326  Renewable Energy Project Finance Modeling  3.00
INAF U6508  Using Big Data to Develop Public Policy  3.00
INAF U6511  Intro to Infographics and Data Visualization  1.50
INAF U6512  Data Driven Approaches for Campaigns and Advocacy  3.00
INAF U6514  Text as Data  3.00
INAF U6858  Economics of US Social Policy  1.50
INAF U6889  Impact Measurement # Evaluation for Sustainable Development  3.00
INAF U6891  Impact Evaluations in Practice  1.50
INAF U6892  Monitoring and Evaluation: Driving Evidence-Based Development and Humanitarian Aid  3.00
INAF U8195  Behavioral Development Economics  3.00
PEPM U6640  Macroeconometrics  3.00

**Non-SIPA Courses**

Courses offered at affiliate Columbia Schools. Please see Cross-Registration instructions to register. Courses not listed must be approved by the DAQA Director. Enrollment is not guaranteed.

ACTU K5841  Data Science in Finance and Insurance  3.00
QMSS GR5073Q  Machine Learning for the Social Sciences  3.00

**Computational and Data Analysis Focus Area**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Points</th>
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<tbody>
<tr>
<td>INAF U6006</td>
<td>Computing in Context</td>
<td>3.00</td>
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<tr>
<td>INAF U6506</td>
<td>Data Science # Public Policy</td>
<td>3.00</td>
</tr>
<tr>
<td>INAF U6514</td>
<td>Text as Data</td>
<td>3.00</td>
</tr>
<tr>
<td>INAF U6600</td>
<td>Testing Models of Public Policy Making</td>
<td>3.00</td>
</tr>
<tr>
<td>INAF U6614</td>
<td>Data Analysis for Policy Research Using R</td>
<td>3.00</td>
</tr>
<tr>
<td>PUAF U8516</td>
<td>Time Series Analysis</td>
<td>3.00</td>
</tr>
<tr>
<td>INAF U6004</td>
<td>Application Development for Social Impact</td>
<td>1.50</td>
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<tr>
<td>INAF U6005</td>
<td>Generative AI</td>
<td>1.50</td>
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<tr>
<td>INAF U6009</td>
<td>Artificial Intelligence in Public Policy</td>
<td>1.50</td>
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<tr>
<td>INAF U6098</td>
<td>Financial Risk Management and Public Policy</td>
<td>3.00</td>
</tr>
<tr>
<td>INAF U6272</td>
<td>Introduction to Data Analytics for Public Policy, Administration, and Management</td>
<td>1.50</td>
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INAF U6274  Introduction to Database Design, Management, and Security  1.50
INAF U6275  Geographic Information Systems and Analysis  3.00
INAF U6502  Into to Text Analysis in Python  3.00
INAF U6504  Python for Public Policy  1.50
INAF U6508  Using Big Data to Develop Public Policy  3.00
INAF U6511  Intro to Infographics and Data Visualization  1.50
INAF U6512  Data Driven Approaches for Campaigns and Advocacy  3.00
INAF U6593  R for Public Policy  1.50
INAF U6892  Monitoring and Evaluation: Driving Evidence-Based Development and Humanitarian Aid  3.00
INAF U6958  Gender Data for Gender Equality  1.50

**Degree Audit Report**

Matriculated students in this program can view their degree audit report on Stellic.

**STEM ELIGIBILITY**

MIA or MPA students who successfully complete their specialization in Data Analytics and Quantitative Analysis and their concentration in Economic and Political Development, Energy & Environment, or International Finance & Economic Policy, along with their MIA or MPA degree requirements, will have completed their SIPA degree program in a government-approved STEM field.

Students can opt to change their Concentration or Specialization via the Concentration Specialization Declaration Change Form. Requests are reviewed and approved by SIPA Student Affairs advisors. If there is an issue with the request, your advisor will contact you. Otherwise, if approved, the new Concentration/Specialization will appear on your record in SSOL and Stellic.

**DOUBLE COUNTING OF COURSES**

Students in the Data Analytics & Quantitative Analysis specialization who have also declared their concentration in International Finance and Economic Policy (IFEPEP), Economic and Political Development (EPD), or Energy & Environment (E&E) CANNOT double-count courses between their concentration and specialization.