Learning to Argue with Intermediate Macro Theory: A Semester-Long Team Writing Project*

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Abstract

We describe our experience with integrating a semester-long economic analysis project into an intermediate macroeconomic theory course. Students work in teams of "economic advisors" to write a series of nested reports for a decision-maker that analyze the current state of the economy, and propose and evaluate policies. The project simulates real-world policy consulting with an emphasis on applying economic theory and models. We describe the project setup and how to tailor its theme to current events, explain methods for keeping it manageable in larger classes, discuss student learning outcomes, and document course evaluation results. Besides improving the learning experience, this project prepares economics students to contribute their own views to policy debates and buttress them with tight macroeconomic reasoning.

Keywords: Teaching intermediate macroeconomic theory, financial crisis, cooperative learning, team-based writing project
JEL classification: A20, A22, E00, G01

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1 Motivation

Employers frequently voice dissatisfaction with the skills of college graduates. The skills they see as most deficient include effective written communication, team collaboration, critical thinking, and applying knowledge to real-world settings (Hart Research Associates 2013). Employers hiring economics majors believe that students lack awareness of history or real-world context, practical data-handling skills, comprehension of the limitations of theory/models, ability to communicate results to non-economists, and a combination of inductive and deductive reasoning (Coyle 2012a). Students themselves feel these deficits, and complain about stylized textbook theory disconnected from the complex policy debates in the media and about memorizing equations without a sense of how to use them to bring their own viewpoints across. In surveys of economics majors at undergraduate institutions in the U.S., 63% of respondents chose "more discussion of real world issues" when asked what changes they would suggest for their economics program, and "preparing for work" along with "the ability to communicate" when asked what skills the program should focus on (Jones, Hoest, Fuld, Dahal, and Colander 2010).

In addition, the recent financial crisis exposed gaps in the undergraduate macroeconomics curriculum and the importance of up-to-date class materials. Leading textbooks did not cover many factors that played a key role in this crisis as they were assumed away in standard models (Colander 2010). For example, standard models focused on the role of money in aggregate demand but neglected the importance of credit (Friedman 2010). In general, leading textbooks did not prepare students to understand the possibility of crises, their causes and policy responses (Gray and Miller 2011). The crisis, therefore, created a need to include multiple new topics such as asset market bubbles, securitization and systemic risk in intermediate undergraduate theory courses. Time constraints, however, make this challenging because standard topics remain relevant and are hard to eliminate (Blinder 2010). Moreover, the financial crisis exposed disagreements on what should be taught on topics such as sources of economic fluctuations since researchers disagree on theory (Shiller

2010).

We describe the setup and experiences from a semester-long, team-based, written economic analysis project to address the above concerns that we integrated into otherwise standard intermediate macroeconomic theory courses for majors as well as non-majors at Boston College (BC) and Washington State University (WSU) from 2009 to 2012.[1] The three most distinctive features of this project are its full integration into a standard, required theory course, its real-time, open-ended nature, and the explicit encouragement of students to apply and challenge the theory and models introduced in class. In this project, students work in teams of "economic advisors" to write a series of nested reports for a well-known decision-maker that analyze the current state of the economy, and propose and evaluate policies while responding to current economic and political events that occur during the semester. The emphasis is on learning to identify policy issues and use macroeconomic theory and models to support one's own arguments. Our experience as well as student feedback show that as a result of the project students not only tremendously improve their written communication and team skills but also gain confidence in independent critical thinking and learn to apply the course material to the real world.

We describe the project setup and timing in Section 2. The project offers a multitude of benefits such as using theory to support arguments, focusing student attention on the current hottest economic policy debate and including new topics not standardly covered in intermediate macro, learning to include feedback and new developments, working in teams, and fully integrating the project into the course which reinforces learning of the material. We discuss each of these benefits in Section 3. In Section 4, we report our experience with this approach and highlight the student learning objectives. We then discuss resource requirements in Section 5 and briefly conclude in Section 6.

[1] In total, we have had 260 and 122 students in our courses at BC and WSU, respectively.

2 Project Description

Students work in teams of about three "economic advisors" over the course of the semester to prepare a step-by-step economic analysis of the current state of the economy and to provide a tightly-reasoned policy recommendation on a current macroeconomic issue.

At the beginning of the semester, all teams receive the Project Overview which is a short, one-page document that describes the project theme. The theme centers the project on the current hottest economic policy debate. For example, the 2012 WSU project theme was analyzing the recent recession and making policy recommendations to President Obama. The Project Overview also sets organizational guidelines such as deadlines, formatting (font size, line spacing), page limits, and so forth.

Because the project is quite ambitious and challenging, it is broken down into a series of three nested reports that build on each other. Table 1 summarizes the handouts that students receive.[2] The Project Overview and Report 1 instructions are handed out during the first class meeting. The instructions for Reports 2 and 3 are handed out later in the semester.

Report 1, worth 5% of the total course grade, is the shortest report (for example, only four pages including graphs, tables and references).[3] Because it is due at the end of Week 3 and we do not cover a lot of theory and models in the first three weeks, this report focuses on summarizing the current state of the economy. The purpose is to become familiar with authoritative sources of macroeconomic data, learn to use these data to describe the current state of the economy, present the data concisely, and master general principles of good writing such as proper citations. We grade Report 1 quickly and provide detailed feedback. Content and quality of exposition are equally valued. In grading, we very much reward creativity and originality to encourage students to pursue their own interests and ideas. For example,

[2]The actual handouts are available from the authors upon request.

[3]The weight of the three reports can be set by the course instructor depending on other assignments that comprise the total course grade. We have, for example, used a grading scheme, in which the project is worth 30% of the total course grade, with exams worth 60% and homework assignments adding up to 10%.

Table 1: Project Example - Advisors to President Obama (WSU 2012)

Project Overview Theme	President Obama requested that your team of economic advisers prepare a series of three reports describing the state of the economy, analyzing the causes of the recession, evaluating existing policies, and proposing new policies.
Report 1 Assignments	1. A description of the current state of the U.S. economy and a comparison to the state prior to the recession (Please use important economic variables to describe the economy and explain to the President why these variables are important.), 2. A definition of a recession (Please inform the President whether the recession is over or not.), 3. A comparison of the recession to another U.S. recession or a recession in another country (Please explain to the President why you chose this particular comparison by telling him why it is interesting and relevant.), and 4. A brief analysis of causes of the recession.
Report 2 Assignments	5. A thorough explanation of the causes of the recession (i.e., how the recession started) and how it spread throughout the economy: You can make any argument you like but you will probably want to discuss the housing sector and financial sector. Describe how the crisis spread from these sectors to the real economy. Be sure to include theory and models we learned. 6. An evaluation of monetary policies taken by the Fed: Discuss actions taken by the Fed and describe the effect of these policies on the economy in both the long-run and the short-run using the theories and models we learned. Evaluate whether these policies were successful in combatting the recession. 7. An evaluation of fiscal policies taken by the government: Discuss the actions taken by the government and describe the effect of these policies on the economy in both the long-run and the short-run using the theories and models we learned. Evaluate whether these policies were successful in combatting the recession. You will probably want to discuss the national debt.
Report 3 Assignments	8. A discussion of the U.S. federal government deficit and trade deficit. Discuss why these deficits are or are not a concern, and 9. A summary of the most pressing issues in the U.S. economy today and what should be done to address them. Your suggestions should naturally follow from this summary and they should be balanced (E.g., if you suggest the government should increase spending, you need to consider the effect on government deficit. E.g., if you suggest the Fed should maintain a loose monetary policy, you need to consider the effect on inflation.)

we reward finding data sources and using macroeconomic variables beyond the ones covered in class.[4]

Report 2, worth 10% of the total course grade, is longer (for example, eight pages includ-

[4]See the Appendix for an example of a grading matrix.

ing graphs, tables, and references), and is due at the end of Week 9. The purpose of this report is twofold. First, the students have to revise Report 1 based on the feedback received from us. This task includes condensing Report 1 to eliminate repetitions and achieve concise writing. Second, the students address an additional set of issues related to the current state of the economy using the macroeconomic theory and models they have learnt so far to support the arguments. We emphasize that there are no correct answers that we expect to read. We encourage students to use the theory and models to bring their points of view across and support their arguments with, or even against, the macroeconomic theory presented in class or in the textbook. Again, we reward creative interpretations to encourage intellectual risk-taking.

Finally, Report 3, worth 15% of the total course grade, is the longest (for example, ten pages including graphs, tables, and references) and is due at the end of Week 14, about one week before the end of the semester. The purpose of this report is twofold. First, the students rewrite and condense Report 2 based on the feedback we provided. Second, they address a final set of issues that focus on policy recommendations; here, a balanced view has to be presented, considering both the pros and cons of the policies.[5] Again, rather than emphasizing one particular approach to the current economic woes, the students are encouraged to present their own economic and political views supported by theory and models, or to point out deficiencies in the existing theory and models.[6]

3 Project Benefits

Students benefit from this project in multiple ways. The project encourages students to question and use theory to support their arguments, centers the macroeconomics course on current events evolving in real time and efficiently introduces important current topics not standardly covered by intermediate macro, provides an opportunity to improve the analysis

[5] A side benefit of this timeline is that students get hands-on experience with models and theory before taking the final exam.

[6] Report 3 also offers an opportunity to incorporate topics of long-run growth and sustainability.

based on feedback, rewards cooperative learning, and reinforces learning. In this section we discuss these benefits individually.

3.1 Learning to "Argue with Macro Theory"

With the standard style of teaching intermediate macroeconomics, students tend to memorize textbook storylines to provide the correct answer on exams. Instead of promoting memorization of correct answers as the dominant learning strategy, we complement the textbook-based teaching by encouraging the students to argue with macro theory. Instead of temporarily filling up short-term memory with static knowledge, we equip students with a dynamic, pretested, and thus ready-to-use toolset.

Students are free to present any view about the project assignments and make any policy recommendation, but are required to apply the macroeconomic toolset of theory and models to support their views. For example, students can take a stand on the effectiveness of fiscal policy using Keynesian or neoclassical arguments – we cover both theories in our courses. Students are also welcome to disagree with the activist role of the government and the Federal Reserve Bank that underlies most standard intermediate macro material, as long as this viewpoint is supported by sound economic arguments and data. Since students have to apply theory and models to explain real-world events in addition to standardly studying them for exams, they learn the course material on a deeper level.[7]

We emphasize that there are no correct answers that we expect to read. Students can even argue against the theory and models by correctly pointing out violated assumptions and weaknesses. This allows us to refrain from presenting macroeconomic theory "as an ever-more-successful approach to the truth about how economies work, but rather an investigation into a phenomenon that evolves as fast as we can keep up with it" as advocated by Seabright

[7]This is reflected in our course evaluations. When asked what is particularly good or interesting about this course, one student at WSU in the Fall of 2013 wrote: *"Application of theories to the real world made you really understand the effects and consequences of the theoretical models. Lot of working with the models made you fully understand fiscal and monetary policies. Comparison of short-run and long-run effects showed you the advantages and disadvantages of policies. Made you understand the current economic situation much better."*

(2012). Using theory and models to present arguments also simulates real-world policy consulting and encourages students to actively participate in policy debates by weighting their views against current consensus models.[8]

3.2 Real-time Experience and Current Topics

Because the current generation of students revels in following real-time events and being connected to the world, we spark students' interest in macroeconomics by centering the project on the current hottest economic policy debate. Besides the "Advisors to President Obama" theme described in detail in Table 1, we have used themes "Campaign Advisors to Candidates in 2012 Presidential Election" and "Federal Reserve Bank Chair Appointment". Common to all themes is preparing an economic analysis for a well-known decision maker, which simulates the atmosphere of real-world policy consulting.

In addition to stimulating students' enthusiasm, focusing on a current debate also brings the course up-to-date with the latest events. Although textbook revisions try to keep up with economic developments, they are inevitably out of date.[9] For example, the first cursory treatment of the 2007 financial crisis was not available in textbooks until the end of 2009. Even in 2014, a description of the financial crisis and the subsequent recession is often tacked on the existing textbooks as a separate chapter instead of being fully integrated into the main

[8]Our project bears some similarities with the College Fed Challenge (CFC) known to have educational value (Brusentsev and Miller 2011) but differs from it in several important ways. While the CFC also brings real-world economics into the classroom by analyzing current economic conditions, it tends to focus on one aspect of monetary policy. Our project provides a more comprehensive look at the economy as shown in Table 1 and allows us to explore not only monetary policy but also fiscal policy and the interaction between them. Instead of using only a particular set of tools, this more comprehensive approach gives students an opportunity to apply the entire array of intermediate macro models/theory including short-run, classical long-run, and very-long run growth models leading to a full integration of the project into the intermediate macroeconomic theory course. Importantly, our project encourages students to challenge existing models and question their limitations by "learning to argue with macro theory". Finally, our project strengthens written communication skills identified by employers as one of the most lacking skills (Hart Research Associates 2013) while the CFC usually uses short oral presentations as the final product. Students will, therefore, benefit from our project in undergraduate economics programs that participate in the CFC such as BC as well as in programs that do not participate such as WSU.

[9]For example, Blanchard and Johnson (2012, p.474) start their policy chapter with the Republican "Contract with America", an election program from 1994. While interesting in 1994, and in a course on recent U.S. history, this almost 20-year-old document is a nonstarter for student interest in the 21^{st} century.

text.

The financial crisis also exposed gaps in the undergraduate macroeconomics curriculum. Many factors that played a key role in the crisis were assumed away in standard models (Colander 2010) and the leading textbooks thus did not prepare students to understand the crisis, its causes, and policy responses (Gray and Miller 2011). However, while the need to include new topics such as the importance of credit and financial intermediaries in the macroeconomy has been recognized (e.g., Friedman 2010), time constraints make incorporating new topics a challenge as standard topics easily fill up the whole semester (Blinder 2010). Our project naturally introduces new topics that are not covered in-depth in intermediate macroeconomics textbooks but are part of ongoing policy debates without compromising the coverage of the standard theory. This is largely achieved by outsourcing fact collection to students. While preparing the reports, students study topics such as the housing sector, lending practices, asset market bubbles, securitization, originate-to-distribute model, leverage, role of rating agencies, too-big-to-fail institutions, systemic risk, and regulation. This common base of knowledge that all teams acquire has a positive side effect on the quality of in-class discussion: students are more informed which brings the discussion to a more sophisticated level.[10]

With our project the intermediate macroeconomic theory course becomes an up-to-date experience. As students address issues that evolve in real time, the conclusions of the first report at the beginning of the semester can, and for good reasons should, differ from the conclusions in the final report. Not only students' information changes as they study the course material, but also the economic and political conditions evolve during the semester – sometimes considerably as in recent semesters.

[10] Although we give all teams the same assignments to have a common direction, the project leaves ample room for pursuing different interests. For example, finance majors enrolled in our courses have explored the links between the macroeconomy and financial markets, which is a natural way for researchers to study the macroeconomy but still under-represented in intermediate macroeconomics textbooks.

3.3 Nested Reports and Feedback

The need to introduce more writing projects into the undergraduate economics curriculum has been noted by others. For example, Docherty, Tse, Forman, and McKenzie (2010) implement intensive writing in large (up to 500 students) intermediate macroeconomics courses with two short independent writing assignments (1000 and 2000 words) aimed at improving writing skills. In contrast to short writing assignments, we fully integrate the writing project into our semester-long course by structuring the project as a series of three nested reports. This project structure has two advantages. First, it allows us to provide feedback on interim reports which gives students an opportunity to improve throughout the semester and produce a final Report 3 containing a polished discussion of issues from Reports 1 and 2 along with policy recommendations.[11] Second, it replicates realistic consulting projects where consultants have to adjust in real time to changing information. The nested reports thus demonstrate that the first report can differ from the final one as students learn more theory/models and as real-world events unfold throughout the semester.

3.4 Teamwork and Cooperative Learning

The project is structured within a *cooperative learning framework* with its five key elements – development of interpersonal and small group social skills, positive interdependence, face-to-face interaction, group processing, and individual accountability – described by, for example, Bartlett (2006) and McGoldrick, Cooper, Marburger, Rhoads, and Smith (2013). This approach has been used in many fields (Hurtado, Eagan, Pryor, Whang, and Tran 2012). In intermediate macroeconomics, Yamarik (2007) has used cooperative learning in student groups working on small assignments such as problem-solving exercises inside the classroom

[11] Extensive literature has shown the importance of feedback for student learning. For example, Hattie and Timperley (2007) distinguish feedback about the task (FT), the processing of the task (FP), self-regulation (FR), and the self as a person (FS). The FR and FP forms are effective for deep processing and mastery of tasks, and the FT form is effective when the feedback is used to improve strategy processing or self-regulation. Our project creates ample opportunities to provide these three kinds of feedback. Furthermore, structuring the project as a series of nested reports allows us to provide timely feedback which is highlighted as one of the most critical features of effective feedback by, for example, by Higgins, Hartley, and Skelton (2002).

and problem sets outside of the classroom, and documented improved student learning outcomes.

In our project, students engage in cooperative learning to generate a larger, more in-depth joint product. To gain *interpersonal and small group social skills* valuable in the real-world work environment, students work in teams of about three "economic advisors".[12] The teams are free to divide the work among the team members; however, they are responsible for reviewing each other's work to create *positive interdependence* and make sure they generate a cohesive analysis. We also encourage *face-to-face interaction* within the teams to generate team discussions about diverse opinions and promote learning from each other.[13] Staggering the project into three nested reports gives the teams an opportunity for *group processing* of both the taskwork and teamwork as it leads to team discussions about how well the teams are functioning and how to improve on the next report.

Individual accountability can be introduced in different ways. For example, Report 1 can be assigned as an individual exercise if the class size allows. In this setup, teams can be formed subsequently based on the interests expressed by the students in their first report instead of self-selection or random assignment. Likewise, in Report 3, teams can be asked to include a half-page personal statement of each advisor, followed by a half-page synthesis of the entire team.

For many students our project is their first opportunity to produce a team-based, written economic analysis that integrates theory and models studied in class with current events and policy issues. Our experience shows that the project leads to more engaged learning

[12]The team size can be varied from two to four team members depending on the class size. The potential issue of free-riding arises in our project as in any other team project. We address this by implementing Team Evaluation Sheets that each team member has to fill out after each nested report. On this sheet, the students indicate what percentage of team effort they contributed. For example, for a team consisting of three students, we expect to see 1/3 effort for each student. If another percentage is indicated or if any team member raises a concern, we address this issue. This tool seems to be quite effective, perhaps also due to the "threat" of having to complete the project individually if it turns out that free-riding occurred. Bartlett (2006) uses a similar team evaluation sheet where team members rate each other's performance on a scale from 0 to 10.

[13]Team presentations to the entire class can be incorporated to further advance team and verbal communication skills if the class size allows.

and strengthens not only students' economic analysis but also their teamwork and written communication skills.

3.5 Full Integration into the Course

Last but not least, the project is fully integrated into the intermediate macroeconomic theory course. It is not an ad-hoc project that would replace other intermediate macro material; instead, it is a guiding framework for our course as the project assignments are designed to cover the entire course material instead of focusing on an arbitrarily selected narrow topic.

We use several additional tools to achieve this integration. First, to generate excitement about the project theme, we periodically start our classes with a short relevant video or online article. For example, during the "Campaign Advisors to Candidates in 2012 Presidential Election" theme, we showed a video of the presidential candidate debate on fiscal policy. During the "Federal Reserve Bank Chair Appointment" theme in 2013, we read articles about merits of the individual candidates.

Second, after each nested report has been graded, we set class time aside to summarize what the teams wrote. Since the teams often come to conflicting conclusions, this exposes the students to different viewpoints and generates a lively discussion. For example, in one of the assignments for the 2012 BC project set up as economic advising to presidential candidates, we provided students with policy-related slogans of the real-world politicians and asked them to evaluate three of them. The teams were free to decide the slogans they found most interesting but they had to use arguments based on economic theory/models to support or reject them. Table 2 ranks the slogans by the number of teams that chose to analyze them, and shows how many teams were for or against each policy.[14] Income

[14] Ambiguous slogans were augmented with more details to facilitate a clear-cut evaluation: "Work must be rewarding": lower tax on wages; "End Bush tax cuts for the rich": increase the top income tax bracket from 35% back to 39.6%; "Low capital tax": cut the top corporate tax rate to 15%, eliminate taxes on capital gains, interest, and dividends, eliminate estate taxes; "We are the 99%": reduce income inequality among U.S. population; "Affordable housing for all"; "Extend level of mandatory health insurance"; "Eliminate Obamacare": undo Patient Protection and Affordable Care Act; "Fair economy": no bailouts for banks; "Stop the Ponzi scheme": eliminate retirement insurance in the Social Security Act; "All electric energy from

inequality and redistribution slogans were selected most frequently and these policies found avid supporters as well as staunch opponents. This example attests to the diversity of thought in our classroom channeled by our project into a productive in-class discussion.

Third, on our exams, we use some questions with the project theme.[15] This full integration reinforces learning throughout the course.

Table 2: Evaluation of Competitors' Proposed Policies (BC 2012)

Competitors' Proposed Policy	Pro	Con	Total
"End Bush tax cuts for the rich"	14	3	17
"We are the 99%"	11	2	13
"Free money" (Abolish the Fed)	1	10	11
"Eliminate Obamacare"	5	2	7
"Fair economy"	3	4	7
"Work must be rewarding"	4	2	6
"Renewable energy"	4	2	6
"Sustainable economy"	4	1	5
"Low capital tax"	3	1	4
"Affordable housing for all"	1	3	4
"Lean government"	1	1	2
"Stop the Ponzi scheme"	1	0	1
"Extend mandatory health insurance"	0	0	0

4 Student Learning Outcomes and Feedback

In this section, we first highlight the student learning outcomes and then give examples of the feedback we have received.

renewable resources"; "Towards a sustainable economy"; "Free money": abolish the Federal Reserve Bank; "Lean government": eliminate the departments of Energy, Housing and Urban Development, Commerce, Interior, and Education.

[15] For example, in the first exam that covers the classical long-run model, we asked the following question in 2012: *"The United States is currently running a budget deficit. There are two fiscal policy actions the Obama Administration could take to balance the budget. Using the classical model with fixed output, explain each action. Be sure to show a graphical illustration of the model."* Nevertheless, most exam questions cover textbook theory and models along with technical skills such as algebra to ensure the students study all intermediate macro material.

4.1 Student Learning Outcomes

The student learning outcomes are reliably the same as long as the project theme centers on current macroeconomic events and policy issues. The primary learning outcomes focus on mastering the course material and understanding current events while secondary learning outcomes pertain to skills for economist jobs and general skills as listed in Table 3. All project assignments map into one or several learning outcomes. Table 3 shows this mapping for the WSU 2013 project outlined in Table 1. For example, learning outcomes 1 and 4 are assessed based on the project assignments 5 through 9.

Table 3: Student Learning Outcomes and Corresponding Project Assignments

		Learning Outcome	Project Assignments
Primary	Current events	1) Making connections between macroeconomic theory/models and the current state of the economy (for example, presenting an explanation of the causes of the recession using theory/models)	5–9
		2) Viewing the economy as a whole comprised of interconnected parts (for example, describing how the recession spread from the housing and financial sectors to the rest of the economy)	4–9
	Course material	3) Using macroeconomic theory/models to support interpretations of current events (for example, using theory/models and considering both short-run and long-run effects to argue whether monetary and fiscal policies were effective in combating the recession)	5
		4) Being cognizant of weaknesses and assumptions in models (for example, a consumption function reflecting a homogenous population with identical savings rates, no explicit model of consumer confidence, or a long-term growth model without accounting for externalities)	5–9
		5) Generating a balanced view that considers the pros and cons of economic policies (for example, considering the implications for the government deficit when recommending an expansionary fiscal policy)	6, 7, 9
Secondary	Skills for economist jobs	6) Using authoritative sources of macroeconomic data (for example, conducting a comparison of the current state of the economy to the state prior to the recession using key economic variables)	1, 3, 5–9
		7) Critically assessing official statements (for example, deciding whether the recession has ended and comparing this opinion to that of the National Bureau of Economic Research business cycle dating committee that issues opinions on when recessions start and end)	2
	General skills	8) Citing sources properly	Organization
		9) Revising based on feedback	Writing Quality
		10) Working in teams to generate a cohesive analysis	Organization

4.2 Student Feedback

To assess the student learning outcomes, we collected all comments about our project written by WSU students in the Fall 2013 course evaluations.[16] We then categorized the comments by the student learning outcome listed in Table 3. Outcomes 1 through 9 received only positive evaluations, and outcome 10 received a mix of positive and negative evaluations. Table 4 gives one example of these student comments for each learning outcome.

Table 4: Examples of Student Comments from Course Evaluations Sorted by Learning Outcome (WSU 2013)

Primary	Current events	1) *"I love connecting the classroom to the real world, and this class did that very well with up-to-date discussions."* 2) *"I had to think out of the box and analyze a number of different areas in the economy that all came together and made the bigger picture easy to comprehend."*
	Course material	3) *"Learn to relate course material to the real world; always tried to use the models to apply to real world problems (e.g., Reagan deficit, Great Recession); the project was very helpful with that."* 4) *"Application of theories to the real world made you really understand the effects and consequences of the theoretical models."* 5) *"...Comparison of short-run and long-run effects showed you the advantages and disadvantages of policies..."*
Secondary	Skills for economist jobs	6) *"Understanding significance of data statistics"* 7) *"Wide variety of topics and room for own opinions/ideas on issues where even professional economists disagree."*
	General skills	8) *"This class helped me in learning to research for papers and how to cite."* 9) *"Learning how to assess my own work and improve because prior to this semester I had a faulty system for improving my work."* 10) Positive comment: *"The group project helped me to develop better collaboration skills with my classmates."*; Negative comment: *"The group project was very difficult."*

We consider the student evaluations of the project particularly positive given the additional workload that the project represents for students. Although students find the project challenging at first, they consider it interesting and rewarding in the end. At BC in 2012, we included the following statement in our course evaluation questionnaire: *"For me, the time for the two-step project was well-spent - I learned a lot from it."* Students could choose

[16]The university-wide course evaluation questionnaire includes eight questions where the students are allowed to type in any comment they wish. This includes questions such as *"Please provide comments about what elements of the course did or did not help you learn."* and *"Overall, what is particularly good or interesting about this course?"*

Strongly Disagree, Disagree, Uncertain, Agree or Strongly Agree. 73% of students chose Agree or Strongly Agree. Typical comments from our course evaluations include:

[...] I learned a TON. The homework helped me learn the material and the project was amazing. At the beginning of year, I was scared out of my mind because of the project but by the end I was really proud of myself over how far I had come and how much I had learned." (BC 2009)

Not many students complain about the additional workload; it is made feasible by allowing students to work in teams, which also generates discussion and collaborative learning from each other. Overall, students appreciate the opportunity to work in groups:

"The group project throughout the semester was a good learning experience for me. Not only about the current state of the economy but also how to successfully work in groups." (WSU 2012)

The students also very much appreciate receiving feedback on the interim reports. At BC in 2011, we included the following statement in our course evaluation questionnaire: *"The interim projects 1 and 2 made the project more manageable and provided a valuable learning experience. I prefer the three-step project (two interim reports and one final report) over a single 10 page report (i.e., the final report only)."* Again, students could choose a response on a scale from Strongly Disagree to Strongly Agree. 91% of students chose Agree or Strongly Agree. For many students, this project is their first opportunity to practice revising and expanding reports. The staggered reports reward hard-working teams and give teams that start off slowly a chance to recover. There is always a noticeable improvement between reports and most teams are able to generate a final product they are proud of.[17]

"At first, the project seemed overwhelming, it was exciting to actually understand and be able to write a paper like this! Allowing us to incorporate feedback twice really helped the process!" (WSU 2012)

[17]The top teams in one of our BC classes received an extra boost of motivation by aiming to publish their projects in "The Eagletarian", a student-run economics journal at BC.

The course and the project increase students' confidence in dealing with macroeconomics. We conducted surveys at BC in the Fall 2012 and Fall 2013 asking "Before/after taking intermediate macroeconomic theory my level of understanding of economic news, statements, and opinions on the media and in public debate was ..." 92 out of 123 students responded to this survey. On a Poor/Fair/Good/Very Good/Excellent scale, the students' self-assessed proficiency increased by more than one category during the semester, from between Fair and Good to close to Very Good. Overall, after taking our project-augmented course students feel ready to discuss current events and policy issues facing the U.S. and world economy.

5 Resource Requirements and Flexibility

A necessary condition for any teaching idea to succeed is that it satisfies the instructor's resource constraints. For this project, the limiting factors are class size and grading resources.

We have successfully adjusted team size and page limits in response to class size. We have used team sizes of two to four students and project lengths of eight to ten pages as class size varied across semesters. Also, the number of nested reports can be reduced from three to two. While the original version of the project consisting of three nested reports that are four, eight and ten pages long provides the students with more opportunities to gain the valuable skills, even the scaled-back version with two nested reports that are five and eight pages long was effective and beneficial to the students.

We provide very clear and detailed instructions in the Project Overview to minimize communication with students about formalities such as formatting. In practice, only the short Report 1 requires this kind of feedback. In Reports 2 and 3, the formal requirements have been met, and grading time can be spent on the substance.

A clearly defined grading matrix such as the one provided in the Appendix makes grading time-efficient. While grading can be done by a teaching assistant, we find it beneficial to grade some aspects (especially of Reports 2 and 3) ourselves to gain direct insight into how

students have progressed in mastering the class material, and to focus our lectures on areas of confusion.

Our project is interesting for economics majors as well as non-majors because the latter are often excellent at observing applicability of course material (or lack thereof) to real world problems. In fact, non-majors can play a key role on a project team by contributing to the diversity of thought.

The project is also flexible from the textbook standpoint. We use Blanchard and Johnson (2012) at BC and Mankiw (2012) at WSU but the project goes with any textbook that covers macroeconomic theory at the intermediate level.[18] Within a given textbook, we find it helpful to coordinate the chapter sequence with the timeline of our project. For example, when using Mankiw (2012), we study Chapters 1, 2 and 3 on introduction to macro, data and national income in the long-run classical model before Report 1 is due that focuses on becoming familiar with sources of macroeconomic data and learning to use the data to summarize the current state of the economy. We then cover Chapters 4, 5 and 7 on the monetary system, inflation and unemployment to complete the long-run model and follow with Chapters 10, 11, 12 and 14 on the short-run model before Report 2 is due that focuses on explaining the causes of the recent recession and evaluating monetary and fiscal policies using theories and models. Finally, before Report 3 is due, we cover Chapter 6 on the open economy, so that students can discuss the trade deficit, and Chapters 8 and 9 on the very long-run economic growth run to enable them to consider growth policies. Students read Chapters 18, 19 and 20 on stabilization policy, government debt, and financial system as background readings for the project throughout the semester. Since authors such as Mankiw design their textbooks to allow for flexible sequencing of chapters, a different order could certainly be used.

[18] de Araujo, O'Sullivan, and Simpson (2013) point out there are two main approaches to teaching macroeconomics at the intermediate level: the traditional approach based on aggregate models of the macroeconomy and the new approach of building macroeconomic relationships from microfoundations. While we use textbooks with the traditional aggregate approach, the microfounded approach (e.g., Williamson 2011) does not preclude instructors from implementing this project in any way. See also Gray and Miller (2011) for more detail on leading intermediate macroeconomic textbooks.

6 Summary

In this paper we describe the setup and experiences from integrating a semester-long, team-based, written economic analysis project into an otherwise standard intermediate macroeconomic theory course. Students write a sequence of nested reports on the current state of the economy and the appropriate policy response to it, responding to events during the semester in real time. Students can follow any line of argument but have to support it by macro theory and models, which simulates a real-world policy consulting experience.

The project is very flexible. It is textbook-independent and can be easily tailored to current economic and political affairs. It is interesting for economics majors as well as non-majors and flexible enough to be feasible even for larger classes.

As we have shown, students initially find the project challenging, but are in the end impressed by the amount of learning and the skills they have acquired. We are especially encouraged by the new-found confidence the students express in using economic theory and models outside of the classroom. The project makes students enthusiastic about "boring theory" and greatly improves their learning experience. But above all, the project nurtures young economists that have skills *and* confidence to actively engage in the policy debates of today and the future.

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Appendix: Grading Matrix Example

Tables 5 to 7 show the grading matrix for the WSU 2012 "Advisors to President Obama Project" including the corresponding student learning outcomes (SLOs) from Table 3.

Table 5: Report 1 Grading Matrix

CONTENT - 50% (50 points)

1. Description of the current state of the U.S. economy and comparison to the state prior to the recession (Please use important economic variables to describe the economy and explain to the President why these variables are important) (12.5 points, SLO 6)

Emerging	*Developing*	*Mastering*
Does not attempt to or fails to identify and summarize accurately.	Identifies and summarizes, though some aspects are incorrect or confused. Nuances and key details are missing or glossed over.	Clearly identifies and summarizes the issue. Identifies integral relationships essential to analyzing the issue.
Results are not relevant.	Results are relevant but not complete.	Results are complete, focused, relevant.

2. Definition of recession (Please inform the President whether the recession is over) (12.5 points, SLO 7)

Emerging	*Developing*	*Mastering*
Does not attempt to or fails to identify and summarize accurately.	Identifies and summarizes, though some aspects are incorrect or confused. Nuances and key details are missing or glossed over.	Clearly identifies and summarizes the issue. Identifies integral relationships essential to analyzing the issue.
Results are not relevant.	Results are relevant but not complete.	Results are complete, focused, relevant.

3. Comparison of the recession to another recession in the history of the U.S. or any recession in another country (Please explain to the President why you chose this particular comparison by telling him why it is interesting and relevant) (12.5 points, SLO 6)

Emerging	*Developing*	*Mastering*
Does not attempt to or fails to identify and summarize accurately.	Identifies and summarizes, though some aspects are incorrect or confused. Nuances and key details are missing or glossed over.	Clearly identifies and summarizes the issue. Identifies integral relationships essential to analyzing the issue.
Results are not relevant.	Results are relevant but not complete.	Results are complete, focused, relevant.

4. A brief analysis of causes of the recession (12.5 points, SLO 2)

Emerging	*Developing*	*Mastering*
Does not attempt to or fails to identify and summarize accurately.	Identifies and summarizes, though some aspects are incorrect or confused. Nuances and key details are missing or glossed over.	Clearly identifies and summarizes the issue. Identifies integral relationships essential to analyzing the issue.
Results are not relevant.	Results are relevant but not complete.	Results are complete, focused, relevant.

PRESENTATION - 50% (50 points)

ORGANIZATION: Meaningful introduction, logical flow of ideas, development of ideas within sections or paragraphs, cohesive analysis, proper use of sources (25 points, SLOs 8,10)

Emerging	*Developing*	*Mastering*
Work is unfocused and poorly organized; lacks logical connection of ideas. Analysis is not cohesive and does not flow well. Format is absent, inconsistent or distracting. Unnecessary repetitions exist.	Basic organization is apparent; transitions connect ideas, although they may be mechanical. Format is appropriate although at times inconsistent.	Organization is clear; transitions between ideas enhance presentation. The analysis is cohesive and flows well. Consistent use of appropriate format. Few issues with other components of presentation.
Few sources are cited or used correctly. No evidence of search, selection or source evaluation skills. Repeats information provided without question or dismisses evidence without adequate justification.	Most sources are cited and used correctly. Demonstrates adequate skill in searching, selecting, and evaluating sources to meet the information need but only information covered in class/textbook is used.	All sources are cited and used correctly. Evidence of search, selection, and source evaluation skills; notable identification of uniquely salient resources. Examines evidence and its source; questions its accuracy, relevance and completeness. Interesting and relevant information not covered in class/textbook is used.

WRITING QUALITY: Appropriately writes to audience; spelling, grammar, conciseness (25 points, SLO 9)

Emerging	*Developing*	*Mastering*
In many places, language obscures meaning.	In general, language does not interfere with communication.	Language clearly and effectively communicates ideas. At times, nuanced, eloquent.
Grammar, syntax, or other errors are distracting or repeated. Little evidence of proofreading. Style is inconsistent or inappropriate for selected audience.	Errors are not distracting or frequent, although there may be some issues with more difficult aspects of style and voice. Style generally consistent and appropriate for selected audience.	Errors are minimal. Style is very appropriate for audience.

Table 6: Report 2 Grading Matrix

CONTENT - 50% (50 points)

5. A thorough explanation of the causes of the recession (i.e., how the recession started) and how it spread throughout the economy (16 points, SLOs 1–4, 6)

Emerging	*Developing*	*Mastering*
Does not attempt to or fails to identify and summarize accurately. There is no or very little use of theory and models. Fails to make connections between different parts of the economy.	Identifies and summarizes, theory and models are used, connections between different parts of the economy are made, though some aspects are incorrect or confused. Nuances and key details are missing or glossed over.	Clearly identifies and summarizes the issue. Identifies integral relationships essential to analyzing the issue. Uses theory and models well. Identifies integral relationships and connections between different parts of the economy essential to analyzing the issue.
Results are not relevant.	Results are relevant but not complete.	Results are complete, focused, relevant.

6. An evaluation of monetary policies taken by the Fed (17 points, SLOs 1, 2, 4–6)

Emerging	*Developing*	*Mastering*
Does not attempt to or fails to identify and summarize accurately. There is no or very little use of theory and models. There is no or very little evaluation of the policies.	Identifies and summarizes the issue. Theory and models are used, policies are evaluated though some aspects are incorrect or confused. Nuances and key details are missing or glossed over.	Clearly identifies and summarizes the issue. Uses theory and models well. A thorough evaluation of the policies follows from the presented facts. Identifies integral relationships essential to analyzing the issue.
Results are not relevant.	Results are relevant but not complete.	Results are complete, focused, relevant.

7. An evaluation of fiscal policies taken by the government (17 points, SLOs 1, 2, 4–6)

Emerging	*Developing*	*Mastering*
Does not attempt to or fails to identify and summarize accurately. There is no or very little use of theory and models. There is no or very little evaluation of the policies.	Identifies and summarizes the issue. Theory and models are used, policies are evaluated though some aspects are incorrect or confused. Nuances and key details are missing or glossed over.	Clearly identifies and summarizes the issue. Uses theory and models well. A thorough evaluation of the policies follows from the presented facts. Identifies integral relationships essential to analyzing the issue.
Results are not relevant.	Results are relevant but not complete.	Results are complete, focused, relevant.

PRESENTATION - 50% (50 points)

ORGANIZATION: Meaningful introduction, logical flow of ideas, development of ideas within sections or paragraphs, cohesive analysis, proper use of sources (25 points, SLOs 8,10)

Emerging	*Developing*	*Mastering*
Work is unfocused and poorly organized; lacks logical connection of ideas. Analysis is not cohesive and does not flow well. Format is absent, inconsistent or distracting. Unnecessary repetitions exist.	Basic organization is apparent; transitions connect ideas, although they may be mechanical. Format is appropriate although at times inconsistent.	Organization is clear; transitions between ideas enhance presentation. The analysis is cohesive and flows well. Consistent use of appropriate format. Few issues with other components of presentation.
Few sources are cited or used correctly. No evidence of search, selection or source evaluation skills. Repeats information provided without question or dismisses evidence without adequate justification.	Most sources are cited and used correctly. Demonstrates adequate skill in searching, selecting, and evaluating sources to meet the information need but only information covered in class/textbook is used.	All sources are cited and used correctly. Evidence of search, selection, and source evaluation skills; notable identification of uniquely salient resources. Examines evidence and its source; questions its accuracy, relevance and completeness. Interesting and relevant information not covered in class/textbook is used.

WRITING QUALITY: Appropriately writes to audience; spelling, grammar, conciseness (25 points, SLO 9)

Emerging	*Developing*	*Mastering*
In many places, language obscures meaning.	In general, language does not interfere with communication.	Language clearly and effectively communicates ideas. At times, nuanced, eloquent.
Grammar, syntax, or other errors are distracting or repeated. Little evidence of proofreading. Style is inconsistent or inappropriate for selected audience.	Errors are not distracting or frequent, although there may be some issues with more difficult aspects of style and voice. Style generally consistent and appropriate for selected audience.	Errors are minimal. Style is very appropriate for audience.
There is no or very little attempt at revising Report 1.	There is some effort at revising Report 1 using feedback but more changes to Report 1 are needed.	Report 1 has been revised using feedback on both the economic analysis and paper-writing skills. Report 1 has been condensed to make enough room for the above Report 2 questions.

Table 7: Report 3 Grading Matrix

CONTENT - 50% (50 points)

8. Discussion of the government deficit and the trade deficit (25 points, SLOs 1, 2, 4, 6)

Emerging	*Developing*	*Mastering*
Does not attempt to or fails to identify and summarize accurately. There is no or very little use of theory and models. Fails to make connections between different parts of the economy. There is no or very little attempt at analyzing whether the deficits are an issue.	Identifies and summarizes the issue. Theory and models are used, connections between different parts of the economy are made, though some aspects are incorrect or confused. Nuances and key details are missing or glossed over.	Clearly identifies and summarizes the issue. Uses theory and models well. Identifies integral relationships and connections between different parts of the economy essential to analyzing the issue. A thorough argument on whether the deficits are an issue follows from the presented facts.
Results are not relevant.	Results are relevant but not complete.	Results are complete, focused, relevant.

9. A summary of the most pressing issues in the U.S. economy today and what should be done to address them (25 points, SLOs 1, 2, 4–6)

Emerging	*Developing*	*Mastering*
Does not attempt to or fails to identify and summarize accurately. There is no or very little use of theory and models. There is no or insufficient recommendation for future policies.	Identifies and summarizes the issue. Theory and models are used, policies are evaluated though some aspects are incorrect or confused. Nuances and key details are missing or glossed over.	Clearly identifies and summarizes the issue. Uses theory and models well. A thorough recommendation for future policies follows from the presented facts. Identifies integral relationships essential to analyzing the issue.
Results are not relevant.	Results are relevant but not complete.	Results are complete, focused, relevant.

PRESENTATION - 50% (50 points)

ORGANIZATION: Meaningful introduction, logical flow of ideas, development of ideas within sections or paragraphs, cohesive analysis, proper use of sources (25 points, SLOs 8,10)

Emerging	*Developing*	*Mastering*
Work is unfocused and poorly organized; lacks logical connection of ideas. Analysis is not cohesive and does not flow well. Format is absent, inconsistent or distracting. Unnecessary repetitions exist.	Basic organization is apparent; transitions connect ideas, although they may be mechanical. Format is appropriate although at times inconsistent.	Organization is clear; transitions between ideas enhance presentation. The analysis is cohesive and flows well. Consistent use of appropriate format. Few issues with other components of presentation.
Few sources are cited or used correctly. No evidence of search, selection or source evaluation skills. Repeats information provided without question or dismisses evidence without adequate justification.	Most sources are cited and used correctly. Demonstrates adequate skill in searching, selecting, and evaluating sources to meet the information need but only information covered in class/textbook is used.	All sources are cited and used correctly. Evidence of search, selection, and source evaluation skills; notable identification of uniquely salient resources. Examines evidence and its source; questions its accuracy, relevance and completeness. Interesting and relevant information not covered in class/textbook is used.

WRITING QUALITY: Appropriately writes to audience; spelling, grammar, conciseness (25 points, SLO 9)

Emerging	*Developing*	*Mastering*
In many places, language obscures meaning.	In general, language does not interfere with communication.	Language clearly and effectively communicates ideas. At times, nuanced, eloquent.
Grammar, syntax, or other errors are distracting or repeated. Little evidence of proofreading. Style is inconsistent or inappropriate for selected audience.	Errors are not distracting or frequent, although there may be some issues with more difficult aspects of style and voice. Style generally consistent and appropriate for selected audience.	Errors are minimal. Style is very appropriate for audience.
There is no or very little attempt at revising Reports 1 & 2.	There is some effort at revising Reports 1 & 2 using feedback but more changes to Reports 1 & 2 are needed.	Reports 1 & 2 have been revised using feedback on both the economic analysis and paper-writing skills. Reports 1 & 2 have been condensed to make enough room for the above Report 3 questions.