

**Peer Pressure: Refereed Journals and Empirical Research In The Undergraduate Economics Curriculum**

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05/15/02

*For presentation at the Annual Meeting of the American Agricultural Economics Association in Long Beach, CA, July 28-31, 2002*

The author would like to thank David Alexander, Assistant Professor, Reference and Electronic Resource Librarian, South Dakota State University and the South Dakota State University students who have graciously participated in this project. Funding was provided by a Faculty/Librarian Instructional Partnership (FLIP) grant. FLIP grants are administered by the Minnesota Private College Research Foundation and funded by the Bush Foundation of St. Paul and The Andrew W. Mellon Foundation of New York City.

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**Peer Pressure: Refereed Journals and Empirical Research In The Undergraduate Economics Curriculum**  
(JEL code: A2: Teaching Economics)

**Abstract**

Sharing with our students what we do as economists and how we do it can augment student learning in fundamental and interrelated ways. In particular, students learn to think like economists; to gain "information literacy;" to explain and synthesize their ideas clearly; and to engage themselves in the learning process. In this paper, I propose a curriculum to teach students how to access, chart and interpret macroeconomic data; to search and access peer-reviewed journal articles; and to formulate, in writing, positions on myriad economic issues, using empirical evidence and the extant academic literature to substantiate their positions. An assessment of the curriculum, which I instituted in fall 2001, demonstrated that students who participated were generally able to determine the extent of information needed to complete an empirical research prompt as well as to access and use the information effectively, efficiently and ethically. Moreover, most students could distinguish between general periodicals and scholarly journals.

Key words: assessment, empirical research, information literacy, internet, macroeconomics

JEL code: A2

## **Peer Pressure: Refereed Journals and Empirical Research In The Undergraduate Economics Curriculum**

Several years ago Becker and Watts (1996) made clear what most of us had long suspected, if not feared: economics professors are often associated with all that is wrong with undergraduate pedagogy in American academia. According to a recent survey of academic economists (Becker and Watts 2001), most economics instructors lecture their students; use a chalk board for graphs and text; eschew pedagogical innovations, including teaching with technology; employ multiple choice and short answer exams as a means of assessment; and abstain almost completely from introducing students to empirical economic issues (data access, retrieval, and evaluation) and scholarly (refereed) publications. Ostensibly, few if any of these tendencies are conducive to good teaching.

But to be fair, economics pedagogy is not all that bad. The extant literature devoted to pedagogical innovations has grown substantially in the last decade (Becker 2000). And, recent research suggests that instructors are augmenting classroom lectures with innovative teaching methods, including classroom exercises (Manning and Riordan 2000; Williams and Walker 1993), games and computer-assisted learning (Becker and Greene 2001; Case and Fair 1985; Katz 1999; Santos 2002; Williams 1993; and Wood et al. 1992)<sup>i</sup> and fiction (O'Donnell 1989). Moreover, whereas multiple-choice and short answer assessment tools may fail to engage students intellectually, such exercises are not useless; on the contrary, they are effective supplements to class lectures particularly because they enable students to evaluate, and improve upon, their basic understanding of the subject matter.

However, sharing with our students what we do as economists and how we do it, particularly as this pertains to empirical economic research, remains a significant pedagogical challenge, a challenge to which even the standard graduate curriculum is not immune (Colander and Klamer 1987). Overcoming this challenge will augment student learning in fundamental and interrelated ways. First, students will learn to think, i.e. solve problems, like economists. To understand economics our students must think as economists do. But, because the standard U.S. undergraduate economics curriculum offers students little opportunity to observe and comprehend the academic and professional manifestations of economic problem solving, such as scholarly research and peer-reviewed publications, students have difficulty not only thinking like economists, but also writing, researching, and conjecturing like economists. Indeed, though students can think logically, we rarely offer them sufficient incentive to do so. On this issue, Becker (2000)

writes, “to get students to think like economists, we need to find ways to move beyond highly structured tests that typically do not challenge students beyond a recall cognitive level (Becker 2000, 117).”

Second, students will gain "information literacy" as they learn to perform empirical economic research. According to the American Library Association, with whom the appellation "information literacy" is most often associated, in order to become lifelong learners, individuals need to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information (American Library Association Presidential Committee on Information Literacy 1989, 1)." Third, students will learn to explain and synthesize, in writing, their ideas. And fourth, students will engage themselves, much as economists do, in the learning process. As Field, et al. (1985) pointed out some years ago, engaging students can "draw the students into a more active role in the learning process" and by doing so, "the student ... becomes responsible for an integral aspect of the course ... rather than becoming a passive recipient of information from the lecturer. (Field, et al. 1985, 216)."

So, in order to share with our students what we do as economists and how we do it, this paper proposes an undergraduate (junior and senior level) empirical macroeconomics research curriculum. Instructors rarely, if ever, incorporate scholarly publications into their curricula (Becker and Watts 1986); this paper demonstrates how this can be done, as well as argues in favor of doing so.

### **AN ALTERNATIVE APPROACH TO UNDERGRADUATE MACROECONOMICS**

All undergraduate economics programs offer a sampling of junior and/or senior level macroeconomic theory and application courses. Essentially, these courses explore the nature and potential sources of short and long run aggregate fluctuations in real economic activity, or business cycles and economic growth, respectively. In addition, these courses typically expound on central banks and fisces, including how each effect economic policy and consequently ameliorate or exacerbate the business cycle. Course titles vary, but for the most part these courses include Intermediate Macroeconomics, Money and Banking, Monetary Theory, and Public Policy. For most economics departments, prerequisites include introductory macro- and microeconomic theory, and perhaps calculus; these courses are usually open to economics majors and non-majors alike.

Despite the myriad theories, models, and ideologies that economics instructors put before their students in these courses, the nature of the discipline, whose inception dates back to the great contractions

of the early twentieth century, is inherently empirical. Nonetheless, my experience suggests that because instructors couch most if not all of the subject matter in theoretical terms, save perhaps topic motivation, which may include some reference to actual GDP, inflation or unemployment, students find these (already difficult) courses unnecessarily complicated, as well as esoteric, dull, and unrealistic. Indeed, few students ever realize that the very methods and methodologies of macroeconomics, and indeed economics in general, are shaped by our attempts to address very big and inherently interesting questions. As Frenzel and McCready (1983) posit, "Presumably, the relevance of economics to "the great issues" is not so much a matter of the knowledge stock of the discipline as it is of how the stock reflects, through its changes, an awareness of, and an accommodation to pressing issues (Frenzel and McCready, 1983, 111)." Hence, economics is not, as our students often suspect, an exercise promulgated by professors who enjoy lecturing ad nauseam on aggregate supply and aggregate demand. Nonetheless, this rent between what we do and what students think we do is particularly unfortunate because, not only does it limit their ability to think, research, write and even wonder like economists, it limits our ability to properly assess their understanding of the subject matter.

To be sure, macroeconomic models are tremendously valuable pedagogical tools, and eschewing them in favor of, say, discussions on normative economics or stylized macroeconomic behaviors is, in my opinion, inappropriate and counterproductive in junior and senior level courses. Nonetheless, students benefit most from economic theories when they can evaluate them, using both extant data and analyses of (other) economists, on the basis of how well or poorly such theories match empirical macroeconomic behaviors.

One way to help students comprehend, appreciate and solve macroeconomic problems as well as gain information literacy, write more effectively, and engage themselves in the learning process is to complement theory with data and analysis. For example, as part of the monetary transmission mechanism component of a money and banking course, we can assign students the empirical economic research prompt that appears in exhibit 1.

After downloading the required data and making the necessary manipulations, students prepare a chart similar to Figure 1. In Taylor (1995), students learn about the standard interest rate mechanism, whereby short-term interest rates affect both long-term interest rates and the real exchange rate, via the

yield curve and uncovered interest rate parity condition, respectively. Then, having charted their data, students attempt to solve an actual (and interesting) economic conundrum; namely, they reflect on whether or not their chart reasonably evinces (albeit in reduced-form) the existence of the interest rate mechanism. Ostensibly, the positive correlation between the fed funds rate and changes in inventories does suggest such a mechanism; namely, as rates fall, interest rate- and exchange rate-sensitive expenditures increase, thereby causing inventories to either grow more slowly or grow negatively.

In addition to exposing students to the many nuances of empirical macroeconomic research and problem solving, assignments such as these often introduce students to other economists, economic data, data sources, charting applications, good writing and, in too many instances, the very notion of a peer-reviewed journal article. Indeed, together these three fundamental skills, namely problem solving ability, information literacy, and good writing are pedagogically valuable because they enable students to learn to identify important and useful questions, but also to find and coherently articulate responses to such questions. As the Boyer Commission Report notes, such exercises get students to participate actively in the "framing of a significant question or set of questions, the research or creative exploration to find answers, and the communications skills to convey the results (Boyer 1995)."

#### **AN OVERVIEW OF AN EMPIRICAL MACROECONOMIC RESEARCH CURRICULUM**

As the monetary transmission mechanism prompt demonstrates, I am proposing an empirical macroeconomics research curriculum in order to teach students how to access, chart and interpret macroeconomic data; to search and access peer-reviewed journal articles; and, to formulate, in writing, positions on myriad economic issues, using empirical evidence and the extant academic (peer-reviewed) literature to substantiate their positions. In this section, I discuss one such curriculum, which I developed in the summer of 2001 as part of a Faculty/Librarian Instructional Partnership (FLIP) initiative.<sup>ii</sup>

The delivery device for this curriculum is a web application, which I have developed and named the Website for Empirical Economic Research (WEER). The WEER consists essentially of a series of web sites, including an assignment page, a discussion forum (or bulletin board), a data store, and a literature resources site.

The assignment page lists, and allows students to retrieve their assignments, which are arranged according to Journal of Economic Literature (JEL) codes; in addition to organizational advantages,

arranging assignments this way introduces students to the JEL classification system. The monetary transmission mechanism prompt (Exhibit 2), which I discussed earlier, is one such assignment.

The data store allows students to retrieve, in text format, the required data, which are from the Federal Reserve Economic Database (FRED). In addition, the data store site prepares a rough plot of the data; though the graphing applet is intended only to guide students as they prepare, using Excel or other compatible software application, their own high quality plot of the data.

Finally, the literature resources site allows students to search for and access scholarly publications. Two key components of the literature resources site are the portal to JSTOR<sup>iii</sup> and the on-line tutorial; the latter includes specific guides to locating information resources related to students' specific courses.

The curriculum is delivered via the WEER in conjunction with redesigned versions of my money and banking and intermediate macroeconomics courses. I have modified each course to include a series of these assignments (2-3 per semester per course). Finally, at the start of each semester students attend a one-hour primer, which our library sponsors, on scholarly publications, including a hands-on demonstration of how to access electronic journal archives.

I assess student outcomes based on their analytical (problem solving), information literacy and written competencies, the rubric for which I display in Exhibit I. I have borrowed these competencies, in part, from our university's *Writing Across The Curriculum* program as well as from the Association of College and Research Libraries.<sup>iv</sup> Essentially, I assess students' analytical and written competencies based on their command of the subject matter, as well as their ability to think independently; to determine the necessary information; to provide a thorough and persuasive substantiation of their claims; to organize their thoughts clearly; and to use precise, correct, and effective language, including correct grammar and punctuation. Moreover, I assess their information literacy competencies based on their understanding of how economic data are defined and distributed, as well as their ability to locate relevant information; to use appropriate data; and to appreciate the ethical and legal aspects of information usage.

### **CURRICULUM ASSESSMENT**

To ascertain whether or not the WEER project makes a difference in student learning, I prepared, and asked students to participate in, an assessment of the curriculum. The purpose of the assessment was to

measure the effect of student participation in the undergraduate economics research curriculum, which I instituted in the fall semester of 2001.

In particular, I implemented the curriculum in two of my money and banking sections (a total of 83 students), which met on Monday, Wednesday and Friday, at 10 and 11 am, respectively; each student participated in the curriculum assessment at semester's end. In addition, as a control, I asked 17 undergraduates in our history of economic thought class, who took my money and banking course a semester or two earlier (before the WEER project was in place), to participate in the assessment. The history of economic thought course is a dual listed (undergraduate seniors and graduate level) capstone course for economics majors (most money and banking students are not economics majors). Hence, using these students as a control group only makes more difficult the rejection of the null hypothesis that the curriculum was ineffective.

The evaluation presents students with the following empirical macroeconomics research prompt regarding inflation targeting and asks them ten questions regarding how they would go about completing various components of the assignment.

Prompt: Chart, for the period 1990 to the present, the monthly U.S. consumer inflation rate, as measured by the consumer price index, and the monthly U.S. civilian unemployment rate. And, obtain a copy of Bernanke B. S. and F. S. Mishkin. 1997. Inflation Targeting: A New Framework for Monetary Policy? *Journal of Economic Perspectives* 11, 2 (Summer): 97-116.

Bernanke and Mishkin (1997) argue that inflation targeting does not, in general, tie the hands of the monetary authority. That is, central banks that choose to target inflation must not necessarily abandon their unemployment rate targets. According to Bernanke and Mishkin (1997), under what circumstances is the central bank justified in abandoning a low inflation target in favor of a high employment target? Though the U.S. Federal Reserve System does not target inflation explicitly, judging from your chart of inflation and unemployment rates, is there any evidence that recent Fed policy has favored low inflation over high employment? Briefly explain your reasoning.

I assessed students according to analytical and information literacy competencies, which I drew from the Association of College and Research Libraries (ACRL), and in the following summary of students' responses, I discuss each competency accordingly. The complete evaluation form, to which students responded, is depicted in Exhibit 3. This curriculum assessment did not capture effects on written competency, nor did it measure the extent to which students (a) enjoyed the curriculum and (b) became engaged in the curriculum.

*Determine the extent of information needed.* In this section, students responded to the question, "What data set(s) would you obtain in order to complete this prompt?" The correct response identifies the



unemployment rate and the consumer price index, though a reasonably correct response might identify the unemployment rate and inflation rate. The latter response is not entirely appropriate because, though the prompt requires students to plot unemployment and inflation, most time series data, particularly those available from the Federal Reserve, are available in levels; transforming the data into, say, growth rates is left typically to the researcher. Of the 83 students who participated in the curriculum, 23% correctly identified the unemployment rate and CPI, whereas 66% of students identified the unemployment rate and inflation rate, and 11% offered incorrect responses, where I define incorrect as either incomplete (6 students) or completely inappropriate (3 students). The comparable numbers for the control group were 0% correct, 47% nearly correct and 53% incorrect. The difference between the sum of correct and nearly correct response percentages for the test and control groups (i.e., 89% v. 47%, respectively) is statistically significant at the 5% level. And to be fair, more than 19 students in the test group identified the CPI, but only these 19 students noted in question 3 that they would need to manipulate the CPI data in order to obtain inflation rates; hence, I assumed the others simply mistook the CPI for the inflation rate.

*Access the needed information effectively and efficiently.* In this section, students responded to four questions, the first of which was "From what source would you obtain these data and how, specifically, would you obtain them?" A correct response, though not the only one, identifies the Federal Reserve as the data source and the Federal Reserve Economic Data (FRED) website as the data location. Of the 83 students who participated in the curriculum, 39% correctly identified the Federal Reserve (or other appropriate source such as the BEA), 30% identified the WEER, and 31% offered incorrect responses. Although those students who answered "the WEER" were not technically incorrect, the response is unfortunate to the extent it indicates that the WEER interface was too accommodating, thereby shielding students from the actual location of their data source. Nonetheless, the comparable numbers for the control group were 35% correct and 65% incorrect. If "the WEER" is not included as a correct response, this difference is statistically insignificant.

I have already discussed the third question, "Would any mathematical manipulation of the data that you obtain be necessary? If so briefly explain," in the context of student responses to question 1 above. On the fourth question, "With what software application would you chart (and if necessary, manipulate) these data?" the test group responded unanimously and correctly Microsoft Excel, whereas the

comparable Figure for the control group was 76%, which is statistically insignificantly different. And, for the final question in this section, "Where would you go to obtain the Bernanke and Mishkin (1997) reading? Please be specific," 78% of students who participated in the curriculum correctly identified JSTOR, another appropriate electronic journal archive or the library's bound periodical stacks. Whereas, 29% of students in the control group correctly identified an approach to obtaining the journal, none of which included JSTOR or other appropriate electronic journal archives. This difference is statistically significant at the 5% level.

*Evaluate information and its sources critically.* In this section, students responded to two questions. In hindsight, the first question regarding the validity of the data was vague. Most students interpreted the question broadly. That is, most admonished that one always needs to be concerned about the validity of a data set. Meanwhile, those students who addressed the question with respect to FRED, or other government sponsored sites, correctly pointed out that economists would not suspect these data to be biased. The second question asked students to distinguish scholarly, or peer-reviewed, publications from periodicals such as *The Economist* or *Time* magazine. A correct answer must identify the peer-review process as a selection mechanism for publication. That is, a response such as "a journal that is read by other economists" is insufficient. Of the 83 students who participated in the curriculum, 63% could correctly distinguish between the two kinds of publications. Comparatively, 41% of students in the control group could correctly make this distinction, though this difference is statistically insignificant.

*Incorporate selected information into one's knowledge base.* In this section, students responded to the question, "In general, when performing economic research, to what type of literature (i.e., general periodicals, scholarly publications, etc.) should you refer for the majority of your study?" Roughly four-fifths of both groups (84% of test and 82% of control) believed scholarly publications would be most appropriate, though, as the prior section illustrated, only two-fifths of the control group could correctly distinguish between scholarly and general periodicals.

*Use information effectively to accomplish a specific purpose.* In this section, students were asked to respond to the following:

Consider the last question in the prompt:

"Though the U.S. Federal Reserve System does not target inflation explicitly, judging from your chart of inflation and unemployment rates, is there any evidence that recent Fed policy

has favored low inflation over high employment?"

Suppose you could refer to a chart of these data. What about the behavior of these two data sets would, for example, lead you to answer "yes" to this question?

Essentially, I'm asking students to conjecture, much as economists often do. Basically, if the Fed had abandoned its dual mandate in favor of, say, a strict inflation target, we would expect that, in the reduced-form relationship depicted in this hypothetical chart of inflation and unemployment, inflation would remain relatively low and steady while unemployment rose. Of the 83 students who participated in the curriculum, 61% offered a logical response, compared to a statistically different 29% of students within the control group.

*Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally.* Finally, this section asked students to:

describe the descriptive details that you would include in your chart in order to ensure that your audience could easily reproduce and verify your empirical evidence.

Students' responses were counted as correct only if they included citing data sources. In this instance, 77% of the 83 students who participated in the curriculum correctly identified sources (in addition to titling, labels and legend) compared to 47% of the 17 students in the control group. This difference is statistically different at the 5% level.

## **CONCLUSION**

Sharing with our students what we do as economists and how we do it remains our greatest pedagogical challenge; and, overcoming this challenge will augment student learning in fundamental and interrelated ways.

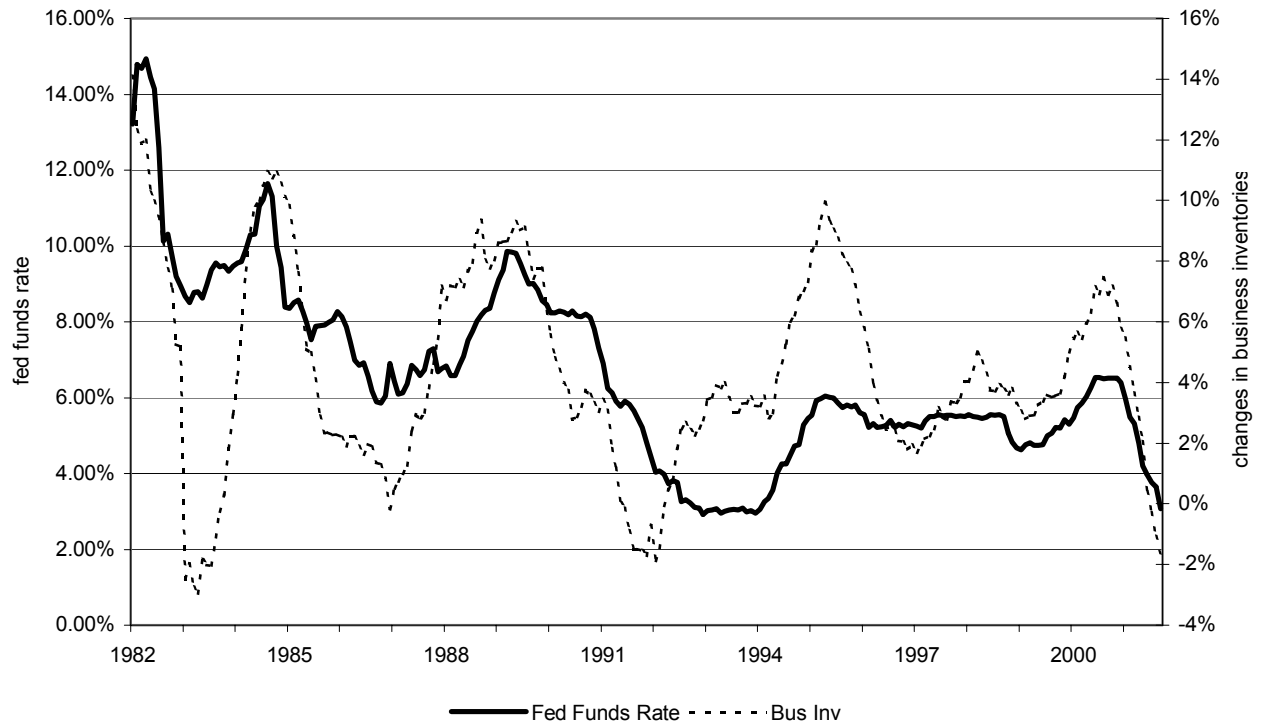
In an attempt to overcome this challenge, this paper proposed an undergraduate empirical macroeconomics research curriculum. The curriculum teaches students how to access, chart and interpret macroeconomic data; to search and access peer-reviewed journal articles; and, to formulate, in writing, positions on myriad economic issues, using empirical evidence and the extant academic (peer-reviewed) literature to substantiate their positions.

The delivery device for this curriculum is a web application, which I have developed and named the Website for Empirical Economic Research (WEER). The WEER consists essentially of a series of web sites, including a site where students can retrieve prompts, a discussion forum (or bulletin board), a

literature resources site where students can search for and access scholarly publications and a data store where students can download and graph data.

Finally, to ascertain whether or not the WEER project made a difference in student learning, I prepared and, at the end of the fall 2001 semester, asked students to participate in an assessment of the curriculum. The results demonstrated that students who participated in the curriculum were relatively more able and likely to properly identify the extent of information required to complete an empirical research prompt, to access scholarly publications, to use information effectively to accomplish a specific purpose, and to understand and use information ethically and legally.

Figure 1: Fed Funds Rate v. Same Month Changes in Total Business Inventories (SA), 1982.01-2001.09  
Sources: FRB Board of Governors and U.S. Department of the Census, respectively



## Exhibit 1: An Example of An Empirical Economics Research Prompt

## Assignment 1: Exchange Rates

Data: Go to the Data Store section of the WEER and download, for the period 1981.01-present, the fed funds rate and total business inventories. Prepare *one* high quality plot, for the period 1982.01-2001.06, containing *both* the fed funds rate and the *same month percentage changes* in total business inventories; your plot should include proper headings (figure number, data set name, range, adjustments, and frequency), axes labels and source citations. To prepare your plot, I recommend (though not require) that you use Microsoft's Excel. Your data plot should fill one 8.5" X 11" page, printed in landscape format.

Reading: Go to the Literature Search section of the WEER and retrieve, via JSTOR, Taylor, J.B. 1995. The Monetary Transmission Mechanism: An Empirical Framework *Journal of Economic Perspectives* 9 (Fall): 11-26.

Prompt: Assuming changes in the fed funds rate are exogenous (and hence these changes essentially represent changes in monetary policy), and assuming changes in business inventories are unanticipated by firms, is there evidence in your chart of a monetary transmission mechanism of the type Taylor describes (i.e., a financial market prices mechanism)? Provide a detailed explanation of your position; be sure to incorporate in your discussion short- and long-term interest rates, as well as exchange rates. According to Taylor, has this monetary transmission mechanism's effectiveness in the U.S. increased or decreased over the last thirty years? Briefly explain.

*Prepare a 1-2 page response to this prompt. I will assess your work according to your command of the subject matter as well as your ability to independently explain and synthesize your positions clearly and effectively. To grade each assignment I will use a numerical grade scale that ranges from 100% (very good work) to 0%. Click [here](#) for an ERR assessment rubric.*

Exhibit 2: Assessment Rubric

	<b>The grade of 90% and above designates that a report demonstrates</b>	<b>The grade of 80% to 89% designates that a report demonstrates</b>	<b>The grade of 70% to 79% designates that a report demonstrates</b>
<b>Analytical &amp; Written</b>	<ul style="list-style-type: none"> <li>-an excellent command of subject matter</li> <li>-a clear explanation and synthesis of ideas</li> <li>-independent thought</li> <li>-thorough and persuasive substantiation of claims</li> <li>-clear organization</li> <li>-precise, correct, and effective usage</li> <li>-correct grammar and punctuation</li> </ul>	<ul style="list-style-type: none"> <li>-a reasonable command of subject matter</li> <li>-a capacity for explanation and synthesis of ideas, though it is not fully realized</li> <li>-a capacity for independent thought, though it is not fully realized</li> <li>-sufficient substantiation of claims</li> <li>-clear organization</li> <li>-mostly precise, correct, and effective usage</li> <li>-mostly correct grammar and punctuation</li> </ul>	<ul style="list-style-type: none"> <li>-an adequate command of subject matter</li> <li>-some weakness or inconsistency in its explanation and synthesis of ideas</li> <li>-relative absence of independent thought</li> <li>-inconsistent substantiation of claims</li> <li>-significant lapses in organization</li> <li>-significant lapses in usage</li> <li>-significant lapses in grammar and punctuation</li> </ul>
<b>Information Literacy</b>	<ul style="list-style-type: none"> <li>-a clear understanding of how economic data are defined and distributed</li> <li>-a keen ability to locate relevant information from a variety of sources</li> <li>-proficiency in the use of information technologies</li> <li>-the use of appropriate data</li> <li>-an appreciation for the ethical, legal and sociopolitical aspects of information and its technologies</li> </ul>	<ul style="list-style-type: none"> <li>-a sufficient understanding of how economic data are defined and distributed</li> <li>-a capacity to locate relevant information from a variety of sources</li> <li>-some proficiency in the use of information technologies</li> <li>-the use of appropriate data</li> <li>-some appreciation for the ethical, legal and sociopolitical aspects of information and its technologies</li> </ul>	<ul style="list-style-type: none"> <li>-a weak understanding of how economic data are defined and distributed</li> <li>-significant lapses in the capacity to locate relevant information from a variety of sources</li> <li>-significant lapses in the capacity to use information technologies</li> <li>-the use of appropriate data</li> <li>-some appreciation for the ethical, legal and sociopolitical aspects of information and its technologies</li> </ul>

	<b>The grade of 60% to 69% designates that a report demonstrates</b>	<b>The grade of 59% or less designates that a report demonstrates</b>
<b>Analytical &amp; Written</b>	<ul style="list-style-type: none"> <li>-an inadequate command of subject matter</li> <li>-insufficient explanation and synthesis of ideas</li> <li>-inadequate substantiation of claims</li> <li>-poor, hard-to-follow organization</li> <li>-numerous errors usage, grammar and punctuation</li> </ul>	<ul style="list-style-type: none"> <li>-a majority of the qualities of a "D" essay, but to a degree unacceptable in college-level writing</li> <li>-a failure to follow or complete the assignment</li> </ul>
<b>Information Literacy</b>	<ul style="list-style-type: none"> <li>-little understanding of how economic data are defined and distributed</li> <li>-an inability to locate relevant information from a variety of sources</li> <li>-an inability to use of information technologies</li> <li>-an inappropriate use of data</li> <li>-little appreciation for the ethical, legal and sociopolitical aspects of information and its technologies</li> </ul>	<ul style="list-style-type: none"> <li>-no understanding of how economic data are defined and distributed</li> <li>-an inability to locate relevant information from a variety of sources</li> <li>-an inability to use information technologies</li> <li>-an inappropriate use of data</li> <li>-no appreciation for the ethical, legal and sociopolitical aspects of information and its technologies</li> </ul>

Exhibit 3: An Assessment of an Empirical Economic Research Curriculum

Prompt: Chart, for the period 1990 to the present, the monthly U.S. consumer inflation rate, as measured by the consumer price index, and the monthly U.S. civilian unemployment rate. And, obtain a copy of Bernanke B. S. and F. S. Mishkin. 1997. Inflation Targeting: A New Framework for Monetary Policy? *Journal of Economic Perspectives* 11, 2 (Summer): 97-116.

Bernanke and Mishkin (1997) argue that inflation targeting does not, in general, tie the hands of the monetary authority. That is, central banks that choose to target inflation must not necessarily abandon their unemployment rate targets. According to Bernanke and Mishkin (1997), under what circumstances are the central bank justified in abandoning a low inflation target in favor of a high employment target? Though the U.S. Federal Reserve System does not target inflation explicitly, judging from your chart of inflation and unemployment rates, is there any evidence that recent Fed policy has favored low inflation over high employment? Briefly explain your reasoning.

**I. Determine the extent of information needed**

1. What data set(s) would you obtain in order to complete this prompt?

**II. Access the needed information effectively and efficiently**

2. From what source would you obtain these data and how, specifically, would you obtain them?
3. Would any mathematical manipulation of the data that you obtain be necessary? If so, briefly explain.
4. With what software application would you chart (and if necessary, manipulate) these data?
5. Where would you go to obtain the Bernanke and Mishkin (1997) reading? Please be specific.

**III. Evaluate information and its sources critically**

6. Would you be concerned that your data source has, for political or financial reasons, compromised the validity of these data or even falsified these data? Briefly explain why or why not.
7. Economists would refer to the Bernanke and Mishkin (1997) reading as a scholarly, or peer-reviewed, publication. What is a peer-reviewed publication and how does it differ from, say, an article from *The Economist* or *Time* magazines?

**IV. Incorporate selected information into one's knowledge base**

8. In general, when performing economic research, to what type of literature (i.e., general periodicals, scholarly publications, etc.) should you refer for the majority of your study? Briefly explain your reasoning.

**V. Use information effectively to accomplish a specific purpose**

9. Consider the last question in the prompt:

"Though the U.S. Federal Reserve System does not target inflation explicitly, judging from your chart of inflation and unemployment rates, is there any evidence that recent Fed policy has favored low inflation over high employment?"

Suppose you could refer to a chart of these data. What about the behavior of these two data sets would, for example, lead you to answer "yes" to this question?

**VI. Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally**

10. Briefly describe the descriptive details that you would include in your chart in order to ensure that your audience could easily reproduce and verify your empirical evidence.



## REFERENCES

- Agarwal, R. and A. E. Day. 1998. The Impact of the Internet on Economic Education. *Journal of Economic Education* 29 (Spring):99-110.
- American Library Association Presidential Committee on Information Literacy. 1989. *Final Report* Chicago, IL: American Library Association.
- Becker, W. 2000. Teaching Economics in the 21<sup>st</sup> Century. *Journal of Economic Education* 14 (Winter):109-19.
- Becker, W. E. and W. H. Greene. 2001. Teaching Statistics and Econometrics to Undergraduates. *Journal of Economic Perspectives* 15 (Fall):169-82.
- Becker, W. E., and M. Watts. 2001. Teaching Economics at the Start of the 21<sup>st</sup> Century: Still Chalk-and-Talk. *American Economic Review* 91 (May):446-51.
- Becker, W. E., and M. Watts. 1996. Chalk and Talk: A national survey on teaching undergraduate economics. *American Economic Review* 86 (May):448-53.
- Bernanke, B. S. and F. S. Mishkin. 1997. Inflation Targeting: A New Framework for Monetary Policy? *Journal of Economic Perspectives* 11 (Spring):97-116.
- Boyer Commission on Educating Undergraduates in the Research University. 1995. *Reinventing Undergraduate Education: A Blueprint for America's Research Universities*. <http://naples.cc.sunysb.edu/Pres/boyer.nsf/>
- Case, K. E. and R. C. Fair. 1985. Macro Simulations for PCs in the Classroom. *American Economic Review* 75 (May):85-90.
- Colander, D. and A. Klammer. 1987. The Making of an Economist. *Journal of Economic Perspectives* 1 (Autumn):95-111.
- Field, W. J., D. R. Wachter, and A. C. Catanese. 1985. Alternative Ways to Teach and Learn Economics: Writing, Quantitative Reasoning, and Oral Communication. *Journal of Economic Education* 16 (Summer):213-17.
- Frenzel, K. A. and D. J. McCready. 1983. Introductory Economics Texts: A Conflict Between What Economists Do and Teach?" *Eastern Economic Journal* 9 (April-June)111:16.
- Gremmen, H. and J. Potters. 1997. Assessing the Efficacy of Gaming in Economic Education. *Journal of Economic Education* 28 (Fall):291-303.
- Katz, A., and W. E. Becker. 1999. Technology and the teaching of economics to undergraduates. *Journal of Economic Education* 30 (Summer):194-99.
- Manning, L. M. and C. A. Riordan. 2000. Using Groupware Software to Support Collaborative Learning in Economics. *Journal of Economic Education* 31 (Summer):244-52.
- O'Donnell, M. G. 1989. A Historical Note on the Use of Fiction to Teach Principles of Economics. *Journal of Economics Education* 20 (Summer):314-20.
- Taylor, J.B. 1995. The Monetary Transmission Mechanism: An Empirical Framework. *Journal of Economic Perspectives* 9 (Fall):11-26.
- Williams, R. B. 1993. Market Exchange and Wealth Distribution: A Classroom Simulation. *Journal of*

- Economics Education* 24 (Fall):325-34.
- Williams A. W. and J. M. Walker. 1993 Computerized Laboratory Exercises for Microeconomics Education: Three Applications Motivated by Experimental Economics. *Journal of Economic Education* 24 (Fall 1993):291-315.
- Wood W. C., S. L. O'Hare, and R. L. Andrews. 1992. The Stock Market Game: Classroom Use and Strategy. *Journal of Economic Education* 23 (Summer):237-46.
- Santos, J. 2002. Developing and Implementing an Internet-Based Financial System Simulation Game. *Journal of Economic Education*, 33 (Winter):31-40.

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<sup>i</sup> Though the use and effectiveness of such computed-aided games and simulations remains the subject of some debate (Gremmen and Potters 1997; Agarwal and Day 1998).

<sup>ii</sup> Faculty/Librarian Instructional Partnership (FLIP) grants are administered by the Minnesota Private College Research Foundation and funded by the Bush Foundation of St. Paul and The Andrew W. Mellon Foundation of New York City.

<sup>iii</sup> JSTOR is a full-text publication archive. For more information see <http://www.jstor.org>.

<sup>iv</sup> Special thanks to Michael Keller and the Writing Across the Curriculum Program, Department of English, South Dakota State University.