TEACHING CRITICAL THINKING TO FRESHMEN ACROSS DISCIPLINES

(ACS Interdisciplinary Opportunities Mini-Grants Application)

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2. SUMMARY:

- Issue: We are seeking the most effective means to teach critical thinking to freshmen, training them how to formulate and analyze arguments, and how to assess claims and evidence—abilities crucial to all disciplines. While we currently try to teach critical thinking throughout our curriculum and try to introduce it in our freshman seminar course, we proceed mainly by modeling and have an inefficient and unsystematic approach.

- Goals: Our goal is to improve on this approach by trying a systematic method of teaching critical thinking, using faculty from different disciplines working together as a team to produce a new, foundational freshman seminar.

- Description: We will run a pilot program consisting of 6 faculty from 6 different disciplines. We will significantly reorganize our freshman seminars so that we teach a consistent, systematic course in critical thinking, using a shared and jointly produced syllabus, specific shared goals, and a shared vocabulary.

- Outcomes: We intend to produce an effective and systematic reasoning course that trains students in crucial critical abilities early on, and will also create a coherent curricular program broadly-supported by the general faculty.

3. PROJECT DESCRIPTION

- Background: As a liberal arts institution, Millsaps College states that one of our primary tasks is to teach interdisciplinary critical thinking. We teach critical thinking throughout our curriculum, and Liberal Studies 1000—our foundational interdisciplinary freshman seminar—is the place where the skills and terminology of critical thinking should be most explicitly introduced. However, the way critical thinking is taught in LS 1000 is unsystematic and primarily based on modeling. Our pedagogical stance has been that by modeling, we hope that critical thinking abilities will "fall out" of LS. Though a laudable strategy in some respects, this current course has two problems: one, its manner of introducing freshmen to critical thinking is inefficient and somewhat haphazard, leaving students with an impression that the course lacks content and faculty with the impression that it does not consistently achieve its goals; two, in an attempt to make this course multidisciplinary, we have included faculty from all departments but have not articulated or created a coherent pedagogical plan that everyone understands and can buy into, leaving us with a case of "too many cooks in the kitchen." Our challenge therefore is to devise a new, more efficient, more systematic, more pedagogically coherent, and more popular way to teach truly interdisciplinary and multidisciplinary critical thinking to all freshmen.

- Goals: Fortunately, there already appears to be a better way to teach systematic and effective critical thinking and that is what we seek to accomplish in the pilot teaching program we are creating. Part of the problem in how we currently teach critical thinking seems to stem from a lack of awareness that Critical Thinking is an established academic field and that the skills of critical thinking can be taught systematically and formally, supported by many excellent textbooks and web-based learning resources (Moore and Parker 2006; Paul and Elder 2003, Ennis 2006; Foundation for Critical Thinking 2006). Calling it a "field" however, is somewhat misleading. Critical thinking (which may generally be defined as deciding whether to accept, reject, or suspend judgment on a claim by analyzing the presence and relevance of evidence) is the foundation of all disciplines, since all disciplines deal with claims, arguments, reasons, evidence, and conclusions. Our guiding assumption, then, is that critical thinking is meta-disciplinary or ur-disciplinary more than simply inter- or multi-, and as such, systematic training in critical thinking will be valuable for all students, no matter what fields they go into. It is this principle that makes our goals radically interdisciplinary in the true sense of the word "radical," meaning "root"—we aim to teach the roots of thinking. In addition, since faculty from all our disciplines use critical thinking as a foundation, it will be very beneficial for us to be able to jointly organize a course, fully buy in to its structure and rationale, and share a vocabulary, set of goals, and syllabus. Ultimately, our goal is to teach critical thinking skills more extensively and effectively in a truly interdisciplinary foundational freshman course—consistently providing students with valuable skills, and providing faculty with a coherent, organized plan that fits in perfectly with our general curriculum.

- Plan: For next year, faculty from philosophy, geology, chemistry, biology, art history, and history have volunteered to teach a pilot LS 1000 class in which we systematically teach critical thinking. We are jointly producing a syllabus, working through a textbook we've selected (Moore and Parker 2006), and meeting weekly to establish policies and assignments. While we do consider critical thinking to be ur-disciplinary (we study roots), the course automatically becomes clearly inter- and multi-disciplinary (we show how the branches rely differently on the roots). In the course we deal specifically with non-argumentative persuasion (covering material commonly taught in rhetoric, political science, and psychology), we cover deductive arguments (addressing logic, mathematics and philosophy), we cover inductive arguments (encompassing statistics and social science methodology) and we cover causal arguments (which include physical and life sciences methodology). We will also be requiring several sizable interdisciplinary writing assignments that will deal with topics typically separated by disciplines, including an "ethics and policy assignment" (assessing various current arguments for specific contentious moral and political conclusions), a "science assignment" (comparing media reports of scientific studies with the actual published studies themselves to assess accuracy, training students to be critical consumers of scientifically produced information), and an "aesthetics assignment" (comparatively assessing various types of art and literature to argue for their value and meaning). While these assignments topically reflect specific disciplines on the surface, they work together to show students how they cover a range of mutually illuminating positions, and our guiding principle remains that these apparently different disciplines *do not use fundamentally different means of analysis*, but rather *they all start by using central critical thinking and reasoning skills* and only end up later specializing in more or less formal information collection and quantitative methods. In general, we will be training students to understand the structure of arguments, the relevance of evidence, and the nature of claims—in all disciplines.

- Prior activities: We have already done a good deal of work. One of the members of our team (Hopkins, Philosophy Department) has taught formal critical thinking courses before and spend the most recent fall teaching a single pre-pilot critical thinking version of our freshman seminar. He also gathered a great deal of information on textbooks and syllabi, convened small discussion groups of faculty in every division of the college, and as a result of those discussions the volunteer teaching team that will implement the full pilot program this fall has now come together. That team is meeting weekly, working our way through the textbook jointly chosen for all pilot classes. Thanks to the support of our administration, we have special permission to alter the standard requirements of our freshman seminar in order to experiment with new policies and test out a genuinely new class. After we finish working through the textbook and learning from the experience of the member who has taught this course before, we will jointly produce a shared syllabus, finalize plans for the major writing components of the class, and create a series of weekly exercises and other assignments. By the middle of the summer, we will be ready to teach our new course.

- Timetable: In the fall of 2005, a pre-pilot critical thinking course was taught, research done on educational resources for teaching critical thinking, and discussions held for faculty concerning trying out a new freshman seminar approach. In the spring of 2006, a group of 6 faculty from 6 departments volunteered to come together to train for and organize a shared syllabus for a full pilot program to be taught in the fall of 2006. We are currently meeting weekly. In the summer of 2006 we will finalize our shared syllabus and training and will be ready to teach our new course. In the fall of 2006, four of us will teach the new course and everyone will continue to meet weekly to learn, share experiences, and keep up to date on issues. We will also use some form of standardized critical thinking assessment tool in pre- and post-tests in order to help us understand how the class affected students. In the spring of 2007, the remaining two members of our team will teach the new version of the course to transfer students (Liberal Studies 1050), also using pre- and post-testing. During that semester, the team members who have completed the class will collect information, including student course evaluations and the standardized test scores. We will continue to meet as a group to assess and interpret this information and our own experiences of teaching (as well as support the two remaining faculty who are teaching the special transfer section of the course). By the end of the semester we will put together a summary report describing the experiences of the students, the experiences of the faculty, the results of testing and evaluations, and will prepare the information for presentation to the faculty in general. Our goal will be to fairly assess whether the class has been a success, if so whether to push for its expansion, and to provide the rest of the faculty with the resources they need to make a considered judgment about the new approach. If the course is successful, some of our team would also consider traveling to other ACS schools to present our findings and offer training and information about critical thinking courses for freshmen.

- <u>Budget:</u>
  - Faculty stipends: since faculty will have to train and prepare new classes, we would like to request an incentive stipend of $500 for people who do the first year of training, teaching, and assessment (6 people this year). We already have volunteers, but the enormous amount of work we will put into the project (and already have) will continue for a while and even a small stipend will recognize the hard work they put in. [$3000]
  - Team meetings: since the team will be meeting weekly for a year to discuss, plan, and continue training (likely by giving up their lunch hour) we would like to ask for $500 to cover photocopy costs for shared materials and four or five group lunches. [$500]
  - Assessment: this is a pilot program and we'd like to do pre- and post-tests of critical thinking ability. Though we haven't had time yet to decide on a test, the California Critical Thinking Skills Test is a respected standard test available for online testing and reporting for reasonable fees. The cost for set-up and scoring for about 100 students taking the test twice (comparing pilot students with non-pilot students) is about $2000, though we will continue to look at some other tests that could possibly be cheaper. [$2000]
  - Faculty conference: since we are doing this as a pilot program to encourage teaching more critical thinking classes, we'd like to hold a faculty conference for all college faculty next spring or early in the fall of 2007 in which we present our results. We'd also like to invite a noted guest speaker on teaching critical thinking as part of this and hopefully make this the central theme of our entire Fall Faculty Conference. We ask

for $2000 for a speaker's fee (including travel), and $500 for food and photocopied materials for the conference. [$2500]

- In all, this would be a request for $8000.

- Context: This is a major revamping of a course which is required of all freshmen their very first semester and of all transfer students as well. It is considered a cornerstone introduction course to college and the skills needed to succeed here.

- Anticipated Impact: We hope to have a major impact on students, training them in fundamental critical thinking skills that they will continue to use throughout their entire college career and hopefully, throughout every aspect of their lives. We also hope to have a major impact on our curriculum, giving it a focus and solving problems with our current approach to a freshman seminar. This will provide faculty with a sense of enthusiasm about freshmen's initial college level course experience and they will hopefully see practical results in students who are better equipped to reason and analyze when they arrive in their classes.

- Institutional support: We have the full support of our institution. Please see cover sheet and attached Director's letter. Dean's letter is being sent separately.

4. EVALUATION

- Evaluation and Assessment Process: We will use three measures to evaluate the success of our pilot program. First, we will measure student's general critical thinking abilities before and after the course, hopefully being able to compare pilot and non-pilot course students. While we know a single course cannot accomplish everything, we are interested to find out whether it will have a measurable effect. Second, we will use our standard student course evaluations to see if students have a good sense of what the purpose of the class was and whether they felt they learned something useful (a problem with our current approach). Third, we will collect and write up faculty experiences of this class, paying special attention to whether faculty think this class deals adequately with the dissatisfaction some feel with our current approach.

- Dissemination of Results: Our team will offer a special presentation to the entire faculty on the results of our pilot study. We will share test score data, evaluation data, and offer our own assessments as teachers of whether the course succeeded or not.

- Institutional continued support: the course we are revamping is part of our core curriculum and is required of all freshmen and transfer students. If this pilot program is successful, it will likely be expanded. Since we are altering a course that is already required, there is no danger of the course disappearing (as some interdisciplinary courses do after having been tried). Our innovations will automatically have a curricular home so that if the project is successful, the innovations will spread throughout.

5. LITERATURE CITED

- Foundation for Critical Thinking. http://www.criticalthinking.org/ (as of 4-10-06)
- Ennis, R. H. Critical Thinking. Illinois Critical Thinking Project. http://www.criticalthinking.net/ (as of 4-10-06)

- Moore, B. N. and Parker, R. *Critical Thinking, 8th ed*. Boston: McGraw-Hill, 2006.

- Paul, R. and Elder, L. The Miniature Guide to Critical Thinking Concepts and Tools, 3rd ed. Dillon Beach CA: The Foundation for Critical Thinking, 2003.

6. C.V. OF FACULTY (please see attached): Amy Forbes (History), Jamie Harris (Geology), Patrick D. Hopkins (Philosophy), Sarah Lea McGuire (Biology), Elise Smith (Art History), Kristi Stensaas (Chemistry)

7. DISCLOSURE STATEMENT

- this applicant has no other on-going grant activities or activities that will coincide with the submitted proposal