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### At U. of Maryland, an Effort to Make Introductory Courses Extraordinary

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Required introductory courses are as important as they are unloved.

They are a key part of the general-education curriculum, which makes up as much as one-third of the typical baccalaureate student's education, and they are the subject of seemingly never-ending revitalization efforts.

Many senior faculty members avoid teaching such courses because they see them as being filled with callow students with little interest in the subject. Students often see them as the curricular equivalent of eating their vegetables, the unappetizing fare they must endure before they get to the interesting parts of their educations.



Robert Briber (center), a professor of engineering and materials science at the U. of Maryland, reviews posters with his students. Part of the goal of the new classes is to pull introductory courses out of the lecture rut.

Critics argue that such distaste is well founded. These courses typically take the form of a slog through a discipline's "greatest hits," can prove to be deadly to students' curiosity, and often serve as gatekeepers that keep them from advancing.

The University of Maryland at College Park thinks it may have found a way to make these courses more engaging and rigorous. New and retooled introductory courses, called the "I-Series," have spread campus-wide after a two-year pilot. This fall, all incoming freshmen must take at least two I-Series courses as part of a new set of core requirements.

The "I" refers to a litany of higher-education buzzwords beginning with that letter, including imagination, inspiration, and innovation.

Jargon aside, the courses are organized around provocative questions or propositions. They have titles like, "Is America Destined to Fall by 2076?," "Rise of the Machines: Artificial Intelligence Comes of Age," and "Economics and the College Affordability Crisis."

"They are not run-of-the-mill, staid introductory courses with a set body of knowledge the students memorize and regurgitate," says Donna B. Hamilton, the university's associate provost for academic affairs and dean for undergraduate studies, and the driving force behind the I-Series.



Undergraduates working in teams present their research on advanced materials to Mr. Briber during the poster session. Intended as a general-education course, each year his class attracts a handful of engineering students interested in learning about unusual materials.

The courses bring the meaty stuff of a discipline—its debates, approaches to problems, and ways of viewing the world—to freshmen and sophomores, rather than reserving such intellectual pleasures for upperclassmen and graduate students. And many of them are taught by senior faculty who have not led an introductory course in years.

But reality has a way of intruding on ambitions, as Ms. Hamilton is aware. While many colleges have created small freshman seminars as a way of revitalizing their general-education curricula, such an effort would be prohibitively expensive at College Park, with its 26,000 undergraduates.

Ms. Hamilton hopes the I-Series will offer the best of both worlds: large class sizes that are affordable at a big institution but taught in a way that offers more engagement than a typical lecture. She hopes her institution's strategy will ultimately prove realistic and long-lasting. Administrators and faculty committees set the expectations. Faculty members decide how

best to retool their courses or to invent new ones, for which they earn \$5,000. The budgets of departments, colleges, or programs also receive \$110 for each student enrolled in a course.

"It took a force of will to say, 'We're going to make an impact on our undergraduates,'" Ms. Hamilton says, "and make clear that this really, really counts and this really matters."

### **Kindling Interest**

Many administrators have made similar pronouncements only to see their efforts stymied by institutional inertia and complexity, says Carol Geary Schneider, president of the Association of American Colleges and Universities, a membership organization that advocates for high-quality liberal education.

Such frustrations do not seem to have discouraged the perpetual effort to improve general education. More than half of the 433 chief academic officers surveyed by the association in 2009 said general education had increased in priority at their institutions, and 89 percent were making some change in this part of the curriculum.

The general-education curriculum generates such intense interest, Ms. Schneider says, because it usually represents the largest academic endeavor on a campus, and it tends to serve as the vehicle for many academic expectations. General-education courses are supposed to be distinctive and reflect the college's values while also providing students with core skills like quantitative reasoning, oral and written ability, and critical thinking. Maintaining focus on such disparate goals can be difficult, though, especially after the faculty committee and provost's office start rethinking other parts of the curriculum.

The factor that will ultimately determine whether College Park's efforts pay off, Ms. Schneider says, is how well faculty members are supported in changing how they teach. Ms. Hamilton's office approves I-Series syllabi and offers faculty members help in revising them. Workshops and teaching consultations are also available.

"There's no reason why in a class of 60 you can't have collaborative learning going on," Ms. Schneider says. But "it's harder, and it takes skill."

To help develop these skills, faculty members teaching the I-Series courses have been meeting throughout the semester to share strategies and exchange ideas. At a recent session, several faculty members described their plans to "flip," in whole or in part, their courses the next time they taught them. Students might watch lectures online outside class and spend time in class working together to apply what they learn.

Other faculty members have tried more incremental methods.

David B. Sicilia, an associate professor of history, said he wondered at first how he could

make his course, "Moneyland: Business in American Culture," which bore all the hallmarks of a lecture, feel less like one.

He also wanted the 100 students in his course to feel history on a visceral level. He tried role-playing, casting some of his students as employees of Chemical and Chase Manhattan banks during their merger in the mid-1990s.

During his lecture, he called on several students. Using company documents as primary sources, he explained that "business units" had been reorganized and the students had either not been "selected" for a position or their job had been "eliminated."

Some were speechless, he recalls. Others asked how they could keep their jobs. Mr. Sicilia stuck to the antiseptic text laid out in the documents. To flesh out the context, he quoted the statements made by the bank's top executive at the time and cited reactions of fired employees.

"That became very experiential for the students," he told his colleagues during the faculty meeting. "That starts to feel to me to be really different from what we do in regular lecture courses."

While he has tried similar exercises in other courses, Mr. Sicilia says he might not have attempted it in a large introductory course had he not been teaching in the I-Series. "There's just an overall cultural message that we get from administration to try to be more innovative and creative," he says. "It's made our general-education curriculum a lot more interesting and a lot more relevant."

### **Unexpected Results**

Large class sizes can make innovation more difficult, say many faculty members in the history department at College Park. As course sections grow to more than 100 students, discussion sections become unwieldy, which places a burden on teaching assistants.

In such cases, the pedagogical shifts can be relatively modest, though still effective. Richard Bell, an associate professor of history, started incorporating field trips to sites of historical interest for his course, "Pursuits of Happiness: Ordinary Lives in the American Revolution," which teaches the social and cultural history of the time.

He also earns high praise from his students for a simple tactic: He stops his lectures every five or 10 minutes to ask them questions, and he listens to their answers.

During a recent lecture, he described the experience of Molly Brant, a Mohawk woman who was the consort of the head of Indian affairs for England. Mr. Bell recounted key moments from her life in vivid detail. Though she and her eight children were emotionally bereft after her mate's death, they drew upon material wealth—including two pairs of green velvet

leggings, fine china, and a violin—to remake their lives.

Mr. Bell asked his students how we might know these things about her. What sources might survive?

A few hands go up.

"Justin?" Mr. Bell says.

"Journals," the student offers.

"Alex?"

"Trade receipts."

"What use would trade receipts be?" Mr. Bell asks.

They would show where she was traveling and maybe with whom, the young man explains.

Paintings, says another student. Diplomatic records, offers yet another.

Mr. Bell says the students' ideas are good, but he explains that accounts written by ordinary people from so long ago rarely survive, if they ever existed. Brant's story can be recovered because she appears in the writings of others, he says.

The discussion of historical methods is part of the course's design. While most introductory history surveys lean heavily on secondary sources, or works by other historians, Mr. Bell draws almost exclusively on primary ones.

"For better or worse, the only historian they hear from is me," he says in an interview. While his students may not have the chance to weigh competing claims made by historians, they do get to see how historians marshal primary sources to build an argument and try it themselves.

Most students appreciate being taught the tools of the discipline, but at least one of Mr. Bell's students says she prefers the survey, which provides an overview of significant dates, events, and people. Dominique D'Anthony, a junior majoring in neurobiology and physiology, praises Mr. Bell, but she thinks the course is better suited to history majors.

"I don't think it's valuable as a 100-level course," she says. "What I think they should be focusing on in my one history class is a broader view."

Some students like the angle offered by I-Series courses, and take the courses even though they do not have to.

Each semester a handful of engineering students take "Materials of Civilization," says Robert M. Briber, chair of the department of materials science and engineering. He

suspects they enroll because they want to learn more about unusual uses of materials.

For instance, Mr. Briber assigns his students to take home a paper clip made of a nickel-titanium alloy. After bending the paper clip, they blast it with a hair dryer. The heat returns the clip to its previous shape. The students must then look up the alloy's applications in patent literature and write about how it is used.

"They learn a bunch of science and physics," Mr. Briber says of his class, "but it's not dry Physics 101."

For other faculty members, I-Series courses have led them to rethink how they teach students in their major. In "Design in Practice," Madlen G. Simon, an associate professor of architecture, teaches the iterative process, called "design thinking," that architects and designers use to solve problems. Her students design a chair and a dormitory, coming up with seven different concepts for each.

"They did it in a rigorous way," she says. The students studied existing models and learned how architects draw. "They failed all over the place."

The process of trying and failing, and coming up with new designs, is what working architects do. But architecture majors don't get there as fast as the freshmen and sophomores in Ms. Simon's I-Series course. They must first plow through gateway courses, including a broad introductory survey, two history courses, physics, and calculus.

By the time architecture majors have the opportunity to design, they are juniors, and much of their ardor for the discipline has ebbed. Ms. Simon thinks that approach is one cause of attrition from the program.

"I've realized from teaching this course," she says, "that bringing the students right inside and letting them experience what it's all about works much better."

## **Real Relationships**

Initial evidence suggests that the I-Series courses have been well received.

Of the 700 students who took these courses last spring, 83 percent said the courses helped them to think about relevant, complex problems and to understand the political, social, economic, and ethical aspects of them.

"Students who've taken pilot versions of I-Series courses have loved them," says Margaret Austin Smith, a doctoral student in sociology who is doing ethnographic research on the courses. "I've heard nothing but rave reviews."

The chief complaint seems to be that the courses are difficult, she says. Students she has interviewed have also said they want to be able to have a dialogue with their professors but

are unsure how to ask questions that can make these conversations happen. "They want mentors," she says. "They want real teaching-and-learning relationships."

It is unclear how well such relationships can truly develop in lecture halls with more than 100 students. Still, contact and engagement with faculty seem to be what interests students most about the I-Series courses, according to several students in fall courses who were interviewed by *The Chronicle*.

A bad teacher can ruin a good subject, while a good one can make even a boring topic interesting, says Jonathan M. Helinek, a senior majoring in information systems and marketing, who took an I-Series course because the title intrigued him.

"It's definitely different from any other class I've taken," he says of "Why Good Managers Make Bad Decisions," a business course.

In teaching the course, Mark Wellman, a teaching fellow, drew upon strategies he had tried separately in other courses: conducting real world simulations, shifting every few minutes from lecture to discussion to brief video clips, and assigning a short paper that students submit at the end of each class. In his I-Series course, Mr. Wellman was able to use all of these tools together for the first time.

Such experimentation is a significant part of the I-Series, says Ms. Hamilton, the associate provost.

But the most valuable part of the effort may be something even simpler. Faculty members from different disciplines are explicitly encouraged to try new teaching methods. They can come together and talk about teaching in ways that have never been validated before, she says.

There's a benefit to such conversations taking place within departments, too, John Buchner, an instructor of general microbiology, said during a meeting of faculty. His introductory course had been revised by a team of professors who had taught it before he did.

"The big thing was faculty didn't work alone," he said. "Start a group with your colleagues and come up with ideas together."

*Correction (12/17/2012, 12:28 p.m.):* Because of a transcription error, a student's comment in Richard Bell's class was rendered incorrectly. When asked about what records might survive from a woman of the American Revolutionary era, the student said "trade receipts," not "train receipts." The article has been updated to reflect this correction.