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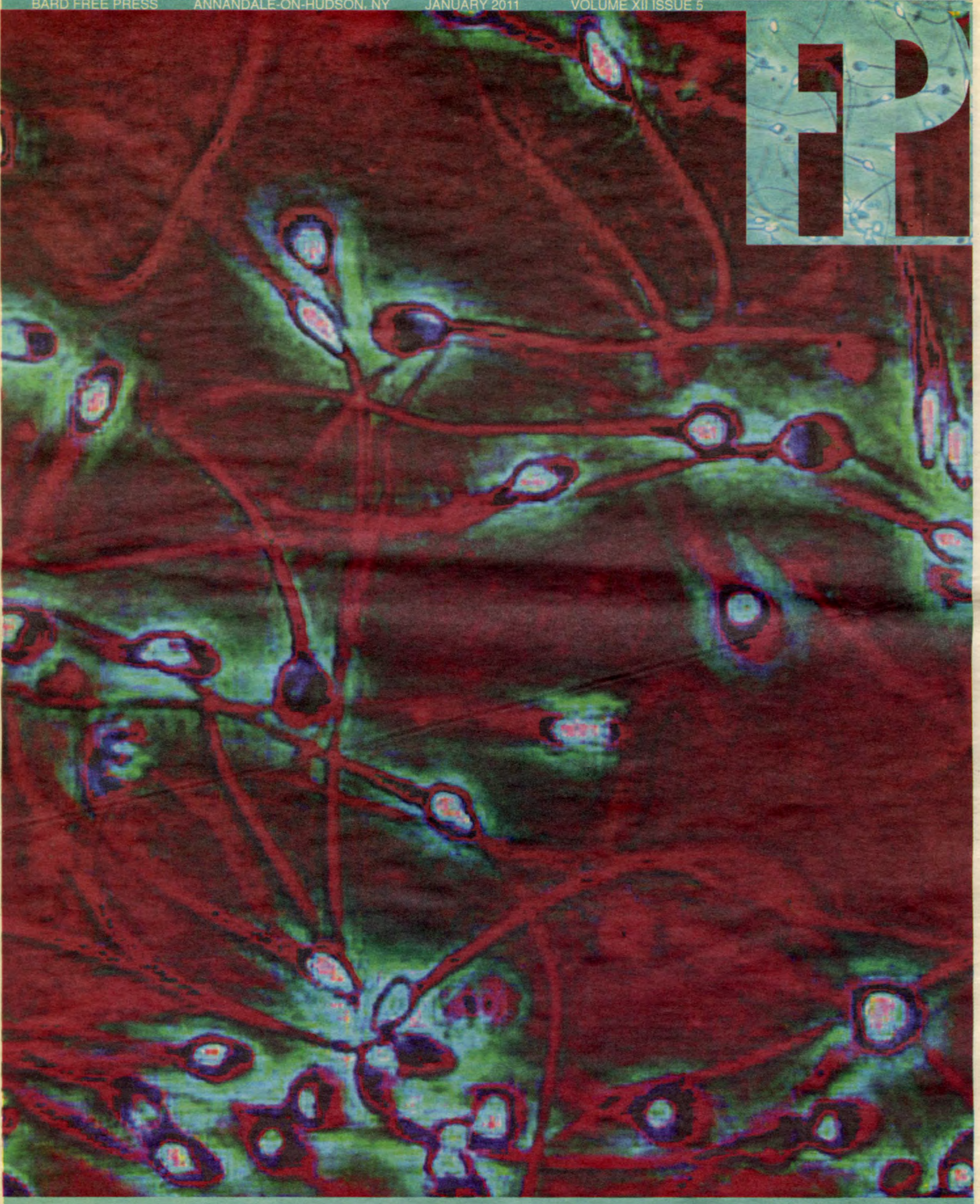
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citizen science edition

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## BROOKE JUDE POST-MORTEM: CITIZEN SCIENCE DIRECTOR SAYS PROGRAM "EXCEEDED EXPECTATIONS"

Interview by Joey Sims

As Citizen Science drew to a close, the FREE PRESS sat down with Brooke Jude, director of the program, to see how she rated its success.

**FREE PRESS:** So how would you say the program has gone?

**Brooke Jude:** For our first go, every part of Citizen Science has exceeded my expectations. Even with my high expectations, it has exceeded them. I have been every day continually happy when I go home to say that I have been part of it.

**FP:** Talk about the planning process of Citizen Science, after you were appointed director of the program in March.

**BJ:** Right after graduation I went to San Diego to a national meeting, to start recruiting applicants. Some of the faculty who are here now, I met at that meeting.

**FP:** So it was always clear that it would be outside faculty.

**BJ:** Yes. We're a small faculty here, and the time commitment to teach this kind of class is significant. But I was very successful in attracting a very strong applicant pool for the program. The response was terrific. I interviewed over 40 really viable applicants over an about two and a half week period.

**FP:** How did you design the classroom experience?

**BJ:** I wanted to give the faculty an outline and pieces of information to cover throughout the course, and then let them bring their own expertise to the room – and also take on some of the expertise of the students in the class. Faculty have been able to adapt on the fly to give students the experiences they wanted.

**FP:** Would you say that freedom to 'adapt on the fly' meant the classes changed a lot during the program?

**BJ:** I think it did change a lot. After each module we had very long faculty meetings in which faculty talked about what worked and what didn't, so that faculty going into those modules could make transitions on the fly.

We've had a lot of faculty adapt and change their ideas. One faculty member, Annie Howen, has put together an activity that has to do with using GIS mappings to map John Snow's London in the cholera outbreak and see how cholera was spread in London in John Snow's time. And other faculty successfully executed that in their classrooms.

We're trying to teach science, which is why I hired more than just twenty-four microbiologists and immunologists. There are physical chemists, there are ecologists. Matthew Deady is a physicist. But they all teach science. Which is why giving them flexibility in teaching is important.

**FP:** How did Civic Engagement Day come into existence?

**BJ:** If you ask the students how many of them volunteered or were involved in their community before coming to Bard, you get a resounding 'Yes' from the student body. But then if you ask them if they have continued that since they arrived at Bard, the number goes way down. So Citizen Science was designed to not be heavy on the outside of class homework, so that the evenings could introduce students to a lot of different civic engagement opportunities that the surrounding community has to offer.

Not all of them will stick. But there might be some in there you really love and you will continue to participate in. We had a group come from Woodstock Day to do activities in the lab, see the school, take the tour, go to Bonnie Brassler's lecture. I was involved with the Mill Road Elementary School activities, where we had over 200 students and their parents. And I was also involved with the Big Brother/Big Sister and the Girl Scout's activities which

were done on Civic Engagement Day. The students that I worked with were wonderful in dealing with the community, and a lot of them asked me, how can I do this in the future?

**FP:** How do you hope to improve Civic Engagement Day?

**BJ:** I think it'll get easier in subsequent years to set up things with community partners. The calendar changes next year to allow us two weekends.

**FP:** How do you think the classroom experience will evolve next year?

**BJ:** Next year we will be adding more complication to the scheduling of classes and timing. It was hard to gauge how much time we would need in a lab, and how much time certain activities would last. So we made it a three hour block in the morning and a three block in the afternoon. Next year that will change.

The faculty will be giving research seminars in the afternoons, which students will attend instead of class. The faculty are scientists - they have research that they do or have done recently. From what I've heard from the students, they want to hear more of that.

But the theme, as far as I can tell, will stay the same. [Infectious disease] is not a theme that has a short shelf life, so that's not a problem.

**FP:** Many students felt that the class sessions were too long – they said they were frequently let out early, or the class had to be stretched out.

**BJ:** Part of the reason for the long sessions was that some of the labs take a three-hour block. So I scheduled them all to mirror that. All students were doing a final project, so the time where they were let out early really was meant to allow them to work on that project. Whether or not students are using that time to work on their final project, I don't know. But I had some purpose in scheduling this way.

**FP:** Also, a common feeling amongst the freshmen was that the work was too easy – that it was high school level science, and they had expected more significant lab work or published studies.

**BJ:** There is a couple of answers to the easiness question. I would rather students say, 'I understand everything that's coming to me, I can be challenged more,' and then get challenged more - than to walk in, feel like they are underwater, and give up on the subject. I certainly didn't want the subject matter watered down in any way. But for a student to understand what's being given to them is better than them being frustrated and immediately giving up.

However, the other thing is, sometimes things seem easier if you are not studying for a test. So a student will say they've understood a concept, and then if you test them on it, they might have partially understood it but not fully. So it could be that without graded exams, students think they understand every facet of it a little better than they actually do.

I hope that students who say it was easy will say to themselves, 'Maybe I can do science. Maybe I'll challenge myself and take a science class sooner rather than later.' And that is a better response than students saying, 'This is as hard as I thought it would be. Forget it. Science is too hard.'

We did meet as a faculty and brainstormed what sort of primary literature we could add to make it more challenging. So the faculty were

trying to think about ways to respond to these requests. I certainly did not ask the faculty to water it down in any way.

**FP:** Students had little to no homework during the program. Many students were happy about this, but it is meant a lot of empty evenings.

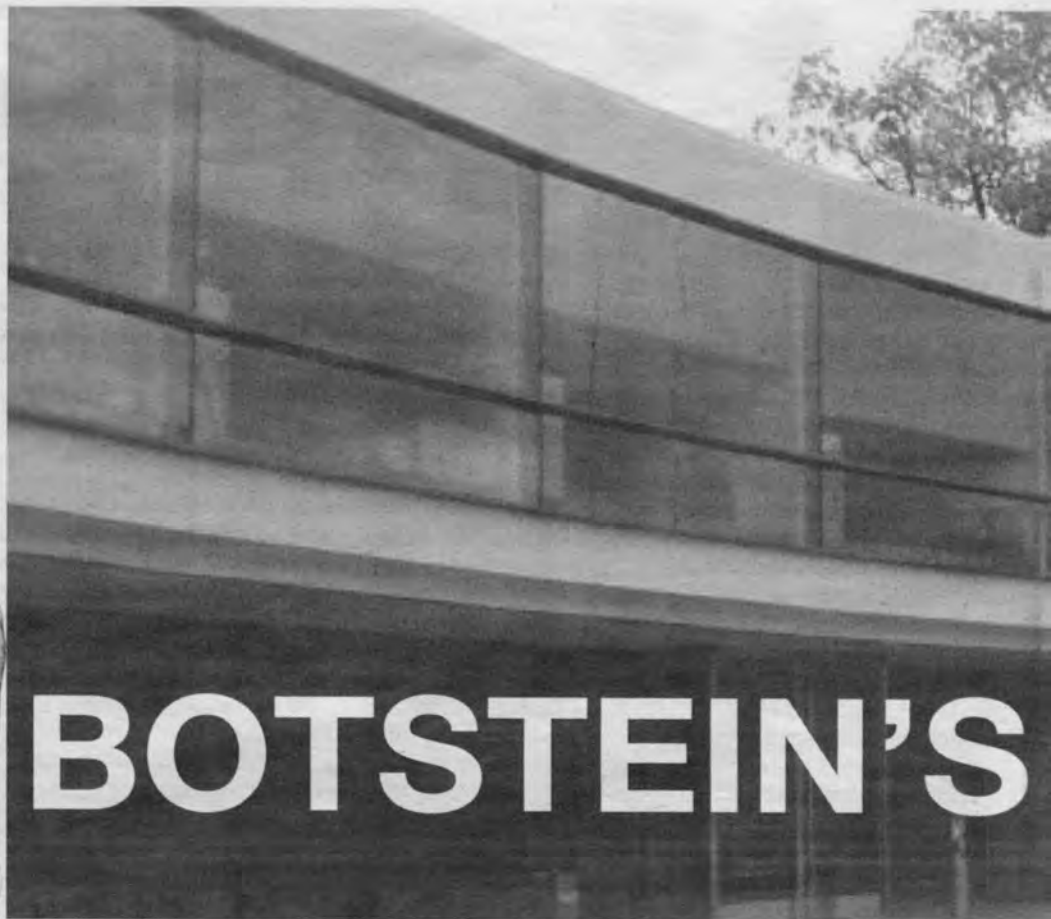
**BJ:** It is a double-edged sword. I think that the idea of no homework is a nice one, to give students the chance to do the civic engagement opportunities, or to do all sorts of things. I think that there could be homework if the students wanted it - but not by faculty assigning it. They have a textbook. They could be reading Carl Zimmer's book to prepare for his lecture. They could be interested in cholera, and say to their faculty member, 'Could you recommend to me some papers about this topic?' So that could be pushed back on the student. Maybe not everything they read or every 'homework' has to be assigned.

I don't think we'll ever go to there being grades in this program, because I don't want there to be. I want it to be a class that is non-GPA bearing, so students can feel free to try out something they feel nervous about.

**FP:** So what does the future look like for Citizen Science?

**BJ:** Citizen Science 2012 is going to happen. I don't think we have any formal commitment to a number. Right now it is part of the curriculum. I have a year-to-year contract. I am already looking ahead to next year, so I don't see a change in directorship. I'm enjoying it a lot. I have lists upon lists of things I want to change to make Citizen Science better.





by j.p. lawrence

**I**t is 8a.m., and the Bard freshman class is up, awoken from their winter slumber. Perhaps in the course of the night's dreaming, they relived some New Year's bacchanalia or revisited old friends they met on break. But on the morning of Jan. 4th, reality is being back at Bard College and getting ready for the first day of the first iteration of Citizen Science, a winter workshop designed to promote scientific thinking amongst non-scientists.

It all started with the idea that Americans are scientifically illiterate. President Botstein decided action had to be taken to fight this trend. From this impetus came the Citizen Science program, with program director Brooke Jude bringing in faculty from the fields of medicine, physics and chemistry, and from institutions like the National Institute of Health, the Navy's bio-warfare division, and the Society of Microbiology, to bring Bard freshmen up to speed.

For these teachers, the program offered a chance to participate in what they saw as an essential mission. "This was exactly the kind of program that I wanted to be involved with. It sounded super exciting, super new and innovative, and a great way to get students interested in science," said Alix Purdy, who studies infectious diseases at Children's Hospital Boston. "And right when I heard about it, I was super excited to be involved."

"I thought the concept was exciting," said Derek Fisher, another faculty member and a microbiologist at the Uniformed Services University. "I think what it's trying to do needs to be done at more places. We need to reach students who might not take science courses until their junior or senior year, because I think a lot of students are really afraid of science and don't understand what science is."

"I also think," Fisher adds, "that we as scientists have a responsibility to reach out to people."

Some students, however, perceive the program as an unnecessary crash course in a subject in which they hold little interest. Many students also object to having their winter break shaved in half. "I think, at first I was bi-

ased against it, because I didn't hear about it until after I got accepted and matriculated. And I learned I wasn't going to have a January break, which I had been looking forward to," says freshman Justin Kegley, a native of Lyme, Conn. "But after that, I had kind of wait-and-see attitude."

Other students, more vocal in their discontent, had made up their minds long before the program started. "Honestly, I thought it was going to be a clusterfuck," one freshman, Reed Cartzas, of New York, N.Y., says. "I thought it was going to be a total debacle, a train wreck, just like, a 20-car pile-up."

While angry sentiments seem to reign loudest on campus, not all freshmen stand against the idea. "I thought it was an interesting concept. Botstein seemed to reason well, and he presented a good rationale for it," says Pleasanton, Calif., native Alex Fager. "I guess I was getting some negative vibes, but I still had a wait-and-see attitude." It is with these views that Bard's freshmen trundled off to their first day of class.

It is the second day of the first iteration of Citizen Science, and already, many students are discouraged. Students have been separated into three groups, one conducting lab experiments, one conducting computer simulations, and one learning about scientific issues in a classroom setting.

In particular, students chafe at the six hours a day allotted to using a computer simulation program, meant to teach students about sick fish and cleaning oil spills. "It's an outrageous amount of time," says Caratzas,

who played enough online games in class to become a ranked Facebook Tetris player. "Six hours. I could have learned this myself from a flash game in like, two minutes."

"It was kinda disappointing because my first module was in the computer lab, so a lot of time was spent just sitting around just waiting for other groups to finish or for the class to reach one common point," Kegley says. "Just because of all that waiting around, I kinda made up my opinion of the program right then."

"The first day, I think they underestimated the students," adds Fager. "I got the impression that they thought we were stupid and didn't know anything. They just assumed that we didn't know very basic things and that we couldn't reason."

Fager still remembers what he thought when his teacher told the class their assignment involved using colored pencils to color a picture of a cell. "I thought, is this elementary school?"

Such sentiments do not go unheard. In the mornings before class, during lunch and in the after hours, Citizen Science teachers talk ceaselessly of how to improve the class. "We discuss it a lot, because we are all trying our very best to respond to the students here to find what interests them and what they're interested in thinking about," said Purdy. "We spend a lot of time, in our mealtimes and our off times, comparing notes about what worked and what didn't work. Which discussions worked well in your class? Maybe I'll give that a try in my class. Which things don't work as well?"

This refinement has its precedents. The faculty had



# GRAND EXPERIMENT

been brainstorming lesson plans and ideas ever since a four-day "Citizen Science boot camp" during the summer. "A lot of nights and weekends were spent looking through material, creating lesson plans, finding articles that would be of interest to the students," says Fisher, who designed his own laboratory experiment.

"One faculty member described it as we're basically enacting the scientific method every day," Purdy says. "We're making observations about what's happening in class, we're making hypotheses about what would work better and the next day we're going to class and trying new things to make them work better. We're doing our very best to do whatever we can to make this program the best it can be."

Purdy says the changes she made involved moving her class toward subjects the students could discuss. In Fisher's class, as well, it was in controversial issues that the students of Fisher's class took the most interest. In the problem-based learning module, students learned about an issue and then discuss the problem and possible solutions. Between documentaries on subjects like the Spanish flu, the quarantine of Typhoid Mary, and the alleged links between autism and vaccines, students debated over the pros and cons of teaching hospitals and HPV vaccines.

"There was a variety of subject matters in a lot of different disciplines: talking about health policies, a little bit of politics, history," Kegley said. "So they weren't just talking about being in the lab, I think they did a good job of teaching citizen science, like the name is."

Even throughout problem-based learning, however, students grumble. The cafeteria, once clogged at breakfast time, becomes barren, as students no longer wake up for morning class. Rumors spread that the *e. coli* used in a lab experiment has infected a student, despite the fact, confirmed by Jude, that the strains used by the school are genetically modified to be as harmless as the *e. coli* naturally present in the human body. Students talk of a cover-up, but the only rumors confirmed are that of a scientifically illiterate student body. Above all, a persistent strain of negativity infects the campus.

It is the third to the last day of Citizen Science, and Derek Fisher stands in front of an audience of ragged survivors, receiving feedback on the program, winc-

ing with each barbed criticism lobbed at the program. "Again, this is the first year of the program, it's going to get better," he repeats, for the audience, silent as if witness to a crucifixion. "We had some momentum coming out of problem-based learning, and I think we lost some of that going into the lab. That's on me."

In the crowd, even the students critical of the program are moved to sympathy. "I thought he was a really cool guy. He seemed really engaged. He really tried hard," says Caratzas.

"I honestly feel sorry for them," Caratzas says of the teachers. "I feel they were fighting a losing battle from the start. I mean, their opposition was a bunch of angry, whiny teenagers. No tool that exists is going to change that."

*Fager still remembers what he thought when his teacher told the class their assignment involved using colored pencils to color a picture of a cell. "I thought, is this elementary school?"*

"The college is definitely trying hard," says Kegley. "I'm going to give the college credit for trying to put together a good program, especially for this first time. So I don't think I'm as critical of it as most people are. But at the same time, I think there are things to be improved."

As for results, some students, at least, believe their time was not wholly wasted. "I think I'm more aware," Kegley says. "The goal - I think - was to make us more aware of science and how we need to be more aware of what's going on in our government and in our country. So I think, walking out of it, that I'm more able to ask questions on these issues."

Many students, however, remain baffled of the program's purpose to the very end. "Honestly, I don't get it," Caratzas says. "I don't. I mean, I understand the idea behind it, but in practice, I don't think it was executed well enough that I have experience to be a politically savvy scientist citizen person. I mean, what did we do that was going to affect me? I'm not going to

clean up an oil spill. I'm not going to own an aquarium filled with sick fish. I'm not going to catch the Spanish flu. I mean, if I had children, I was already going to get them vaccinated, because I'm not insane. So, what was I supposed to get out of it? I don't understand."

As for the teachers, they remain confident that the program will soon prove its worth, provided there are changes. "It's a fantastic idea," Purdy says, "some things just have to be changed, and I think everybody knows that. And I think with some changes, it could be a very valuable experience. But this year, it was a bit of a challenge."

"If I were to teach the course again, I think I would approach it a little bit differently," Purdy adds, "I would spend a long time preparing discussion points and topics that interest a broader range of students; for instance, more humanities topics, science and human rights. There's all kinds of things that could be integrated that I think could pull in some of the students who might have been lost along the way by what seemed at some points like, quote, rote learning."

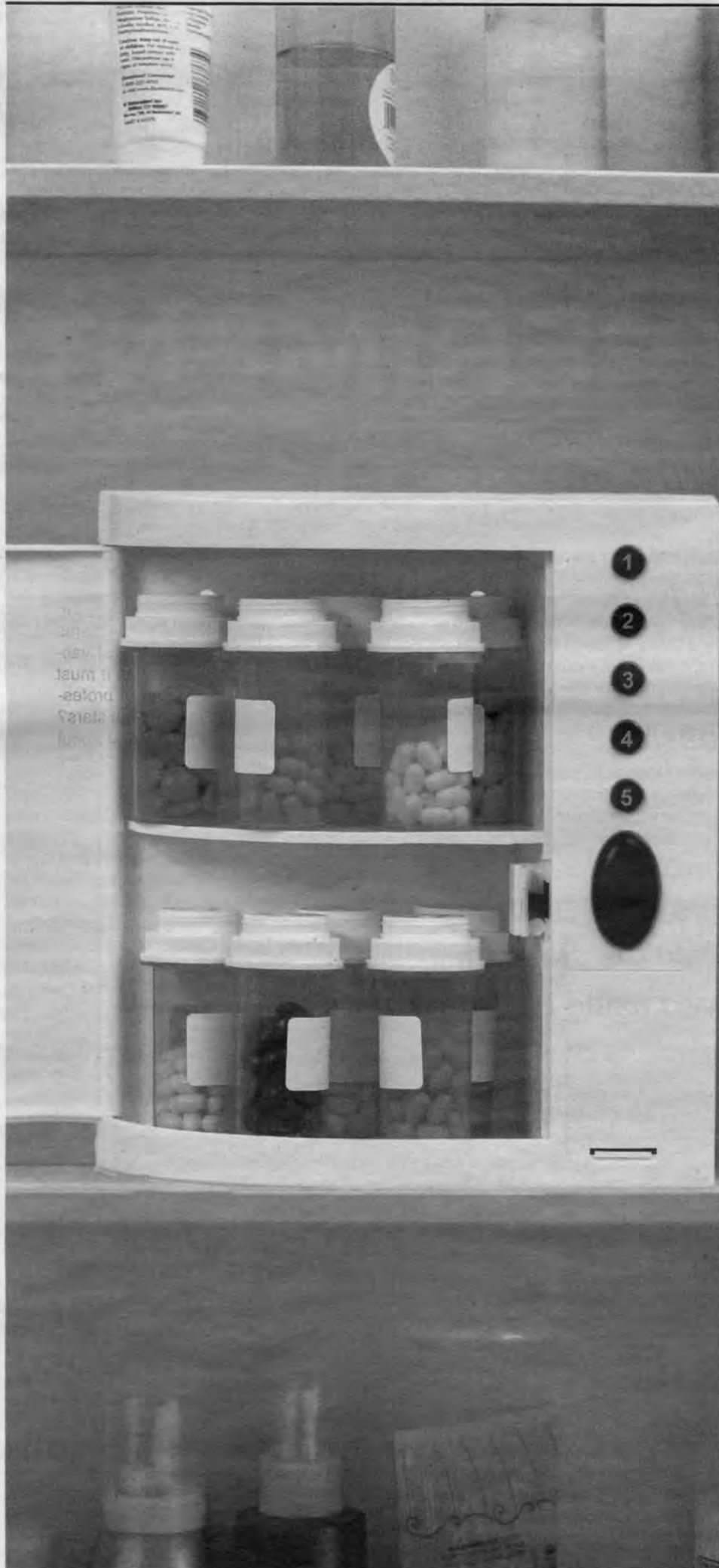
Perhaps a more issues-based Citizen Science would serve the students of Bard better. Bard's other freshman program, Language and Thinking, offers students with an introduction to critical and creative thinking. Perhaps a program that presents students with scientific controversies and left them to research possible solutions would lead to thought-provoking conversation in the manner of L&T. Perhaps such changes are already in the works.

Stephen Jay Gould once noted that there is a certain fallacy among people to believe that great ideas spring full-formed, like Venus on a conch-shell or Newton under the apple tree, instead of evolving incrementally toward its present state.

Language and Thinking, too, was derided in its time. But if the caretakers of Citizen Science can bring improvement each year to the program, no one will remember its rocky start 20 years from now. For now, however, the freshmen class of 2014 will have to make due with being the initial experiment.

"I'd say, not all hope is lost for Citizen Science," says Fager. "It's a starting project, but I would like to make it clear that it was not an enjoyable experience."

# CIT SCI OPINIONS



## DUMBED DOWN AND STRUNG OUT CIT SCI TOO EASY, TOO LONG, TOO BORING

by *nicholas carbone*

When I originally heard about the idea of Citizen Science, I believed that it would be more similar to the Language and Thinking workshop. I thought that, as in L&T, we would be doing readings and lab experiments and then discussing them in depth, along with writing on the process of science and the way in which we experiment in our every day lives.

Instead it seems that Citizen Science is too caught up on giving us hands on activities or trying to teach us how diseases work by showing videos on them. Bard did not want to get too sophisticated with the curriculum, so they decided to lower the level of many of the scientific experiments to an elementary level. I understand that they were worried about science material going over kids' heads, but there must be a way to teach us new things and allow us to experiment and examine things in a new way.

It is the first time that the college is running Citizen Science, so obviously the program would be rough at this point. L&T is a program that has been refined for years, which is why it seemed more beneficial to our learning. L&T also acts as a way for freshman to understand Bard and make friends before beginning their first semester. By the time we get to Citizen Science, though, all the freshman already have their own friends and a good grasp on what Bard is about. So of course, Citizen Science cannot be exactly the same as L&T - but it must improve if Bard plans on keeping it.

By the looks of it, Citizen Science did not live up to many students' expectations. That does not mean that the program should end indefinitely. Citizen Science just needs to be refined, like L&T was. I know it will take years before all the kinks are worked out of the program, but if Bard hopes to provide more mandatory scientific education they will have to work hard on figuring out how to make students interested in science without babying them.

The lab experiments were usually at a middle school level, and so were not very interesting to me. I did not really understand what I was doing when I performed the experiment, or what benefit it caused anyone. The lab experiments were enjoyable in the sense that they kept me occupied, and were more exciting than sitting and watching YouTube videos about viruses.

If there was one thing I disliked the most,

it must have been the task of creating a model of some organism through origami or snow. This seemed like one of the most pointless assignments. It did not help me learn about science or make me remotely interested in what we were doing.

The computer modeling module had some experiments that were mildly interesting, like one where we infected an animal and saw how many of them died or lived after a certain number of weeks. Some of them were not realistic experiments considering there was no control group, but it was still slightly interesting. I do not believe it was an essential aspect of the curriculum, but it did demonstrate certain points about how a disease can last longer if it has the ability to mutate.

The problem solving activities were not that bad, but I feel that they could be combined with the lab to make the lab more sophisticated. Also, the idea of a final project might have been nice - if Bard wanted us to actually do something of some importance. Instead, the teachers just asked us what we wanted to do for our final presentation, the only stipulation being that it had to have something to do with infectious diseases. I do not think much of anything was learnt from these final experiments, and I hope to have a more intellectual time in science classes I take in the future.

My teacher seemed enthusiastic about the program, but she did not deviate from the plan Bard gave her. I have heard of other teachers who have deviated from the basic plan, and their students may have done more exciting things with their time. Teachers need to be able to understand what kids desire more and be able to help them, instead of relying on a basic set of rules.

Citizen Science is an experiment on the freshman class of 2014 at Bard College. It created a variety of strife, disappointment, stupidity, and boredom. I hope Bard learns about the necessary changes and tries to refine this program to make it something to look forward rather than dread for future freshman classes.

## CITIZEN SCIENCE WASTED ON THE FRESHMEN IS READING *THE NEW YORK TIMES* ENOUGH?

by *annie cockrell*

I feel as though this program is wasted on the freshman. Though many of us regularly spend summers and winters across the country and the world, for a vast majority of the students, college is the first time away from home. This program, in tandem with the Language and Thinking workshop in August, is too much for any freshman class to handle.

If the goal of Citizen Science is to get students more aware of science, then congratulations – I fully admit now clicking on the “Science” section of the “New York Times” online website. But if the goal is to get students to care, I feel as though this class has surely missed its mark “Congratulations.” I remember telling myself, my eyes skimming the headlines, feeling superior for even checking in the first place. “Now what? How are you going to use your knowledge to change the world?”

I’m not, obviously. My group’s 1950s-style Public Service Announcement isn’t going

to be shown in third-world countries; the knowledge gathered by experiments testing the effectiveness of food preservation methods isn’t going to be taught to anyone who regularly grows their own food; and my own “informational leaflet” will have an average of forty-five of its fifty copies discarded before they leave the room. The day I was most looking forward to, Civic Engagement Day, turned out to be mishandled, disorganized, overstaffed, and underappreciated.

I came to Bard knowing it had the reputation of occasionally seeming “elitist,” and I told myself that I wouldn’t buy into it. But now, after telling myself that I “know” science because I played with cardboard, failed miserably at origami, and read the headlines in the *New York Times*, I realize that I am no better than the elitist stereotype I tried so hard to avoid.

## GOOD HYPOTHESIS, WONKY TEST RUN PROGRAM MUST BE EXPANDED TO WORK

by *hans kern*

The idea is good. Get a bunch of college freshmen together and scare the bejeebies out of them with horrendous infectious diseases so they start thinking about the importance of modern science and condoms. Then isolate them in the woods for a few weeks and see what happens. Well, Tewksbury got hit by a stomach bug. Cause? Correlation?

It is hard to get a general consensus on how the Citizen Science experience really went. Some will say it was an eye-opening, neuron-electrifying experience, while others do not feel quite as dandy about it. The variability in these results is largely attributable to the absence of a control in this experiment. Students and teachers were isolated in their groups, left to their own devices with a general topic and a number of activities to address in the course of these two-and-a-half weeks. This means that, inevitably, things soon sizzled out in many of the groups, in others they just went awry. Our class got lucky with Dr. Martiney, a truly brilliant man with a great sense of humour, a passion for cookies, no raisins please, and a lot of experience in the fields of biowarfare. But not everyone can be as skilled in keeping a bunch of cabin feverish, overpartied and underrested freshmen 60% awake and interested. It’s a difficult task.

Civic Engagement was kinda cool. I spent a whole day cleaning out the basement of a soup kitchen and homeless shelter, finding out only after kicking up dust containing

the whole spectrum of microbiological evils and probably some new ones that it had served as a mortuary until seven years ago. Feeling queasy? So the practical element added an extra edge that I actually quite enjoyed. Beyond that, I felt that much of the activities offered were somewhat tame. Some of the lectures were good, others not.

*“Our ability and need to change the world must be made more evident and practically feasible.”*

I would like to say for the record that Chris Mooney is a self-glorifying pseudoscientific charlatan. A man who cannot give a talk without making low-jabs at audience members and having covers of his published books in the corner of every slide in his presentation cannot be taken seriously.

Like I said, the idea is good; but it must be expanded beyond infectious disease. If Bard truly wishes to immunize students against science illiteracy in one big sweep, like a set of vaccinations immunizes against a panel of diseases, then it must think beyond just infectious disease. A rotation of professors from different fields would be good. What about the stars? What about the weather? What about the plants? What about the damn environment? If the state of our natural environment and humanity’s impact on it isn’t pressingly relevant to our generation, then I don’t know what can be. Our ability and need to change the world must be made more evident and practically feasible. Most of the students who took Citizen Science will never be microbiologists, so they must be given a wider set of skills and understandings to take into the real world and make a difference there.

## TEPID BEGINNINGS FOR BARD’S CITIZEN SCIENCE STUDENTS QUESTION “VAGUE PROMISES” OF PROGRAM

by *hannah leclair*

It’s difficult for me to call to mind a friend or classmate who was thrilled about returning to Bard two and a half weeks early from break for Citizen Science. On the other hand, I haven’t encountered anyone who didn’t return curious about the program and what it might offer us, besides the free stainless-steel water bottles.

I entered Citizen Science with an average degree of excitement, and find myself, in the final weeks, relatively unscathed, apart from an average degree of disillusionment. My initial excitement was quickly tempered by a growing awareness of the general expectation that my classmates and I were unmotivated and unenthusiastic, and needed to be cajoled into participating in class and civic engagement activities.

Would there be homework? Not really, but see if you can finish this reading for class tomorrow. Was there an attendance policy? Not really, but your teacher will probably know if you’re not present, and your PC might be responsible for noting that you’re hanging around the common room during class time. Was there a curriculum? Well, there was this mandatory assignment to research the effects of acai berries. What are we supposed to take away from all this?

Uncertainty about questions like these characterized Citizen Science. The program’s description, or mission statement, is a vaguely worded paragraph that promises Citizen Science will “introduce students to the idea of science and the scientific method... promote scientific literacy and utilize the theme of infectious diseases.” I’m sure that that statement meant many different things to different students, depending on their experiences in and outside of class. For me, it meant doing things like watching many hours of PBS documentaries and TED talks, making colorful dots proliferate on a computer screen, and learning that all you have to do to quickly summarize a complex scientific article is read the abstract at the beginning and the discussion at the end.

My teacher was Danielle Whittaker, and I enjoyed being in her class and working with my classmates. Danielle inspired our attention and respect. Regrettably, how-

ever, the curriculum simply didn’t provide enough material to fill up six hours of class time a day. The length of class time was a challenge to students and teachers, who have probably not been accustomed to spending six pedagogical hours in the same room since grade-school. My experience of leaving class 45 minutes, or even 2 hours early, was not atypical.

The program was occasionally very engaging. The most interesting moments of class were when Danielle lectured us about her own work and areas of expertise. The lectures were excellent, especially Bonnie Bassler’s talk about the way bacteria communicate. But for the most part, Citizen Science was remarkably uneven.

In a Citizen Science blog post about the civic engagement program, a Citizen Science fellow wrote, “Bard students have a weird ability to be passionate and apathetic at the same time” (“The Whys, Whens, and Whats of Civic Engagement Day,” 12/25/10). What’s that supposed to mean to first-years like us, who are still trying to figure out what we want being Bard students to mean?

The classmates I’ve met so far this year are smart people. I think I speak for my classmates as well as myself when I say that we are responsive to things that we are taught really matter. We are passionate when we learn how high the stakes are. We pay attention. L&T was a high-stakes program. Not only did we all know our matriculation depended those three weeks, the writing and thinking we did during that time felt important.

The idea driving the Citizen Science program is truly cutting-edge, but I think nearly everyone would agree that this first time around, Citizen Science fell far below our expectations. The challenge I hope the Citizen Science will meet next time around is fostering real a sense of what’s at stake here—and fostering the awareness that the passionate, constructive criticism of Bard students in response to Citizen Science is vitally important for the continuing development of this program.





## JAMES MARTINEY THE NAVY'S BIOLOGICAL WARRIOR

by lucas opgenorth

Citizen Science professor James Martiney has accumulated an impressive and diverse resume during his many years as an expert in the field of infectious diseases - the specific area around which the inaugural Citizen Science program was based. For ten years he researched malaria, focusing on understanding the specific connection between the disease and how one gets sick and dies from it, an aspect of malaria that is still unclear and problematic. He continued his work with his infectious diseases by working in the United States Navy Reserve. In 2003, he was mobilized into active duty and spent time in Sicily supporting the military forces engaged in the Second Persian Gulf War.

While he is unable to divulge the details of his work with the Navy for reasons of national security, his work involved identifying chemical and biological weapons and training military personnel. He now works as a part time consultant in a field known as biosecurity "It is basically a marriage between chemical weapons research and disease control" he explained. The rest of his time he spends working as a professor at Connecticut's Sacred Heart University, teaching introductory science courses and courses in his field of expertise, infectious diseases.

When Martiney tells people about the ten years of work he did researching malaria, he commonly receives a response along the lines of "But we don't even have malaria anymore." Such ignorance of this serious scientific issue - the disease kills 3-4 million people annually - have inspired the professor to work on promoting scientific literacy. It was this interest led him to apply for the Citizen Science program, when he heard about its goals. "I am very impressed by the money and effort Bard put in to create a new program during a period when many other colleges are being forced to cut programs to save money" he said.

Additionally, the professor spoke very highly of Bard's students, praising their intellectual curiosity and genuine interest in the subject matter - especially considering few of them were science majors. He also noted that Bard's freshmen are well read and able to provide articulate, cogent comments as well as separate hard facts from fluff, an important part of understanding scientific issues. "The students understand that while everyone is entitled to their own opinions, everyone is not entitled to their own facts," he said.

In addition to general scientific literacy, the Citizen Science program sought to promote active engagement with one's community. As is evidenced by his background in research and military activity, Martiney embodies this spirit of applying one's education in the 'real world.' "I believe in responsibility in relation to my rights as a citizen," he said. "Many young people seem to take their rights for granted and do not see the giving part."

Bard students' willingness to participate in the various civic engagement activities once again impressed Martiney and demonstrated the maturity of Bard's freshman class. Martiney believes that Citizen Science, and other programs like it, will influence students to actively and constructively engage in pressing scientific issues when they become professionals later on in their lives. "We base what we do twenty years from now on what we do now" he said "This program helps mold the students perspective so when they grow up, they won't be writing nonsense."

As the program came to a close, Martiney expressed very positive feelings towards the program and his experience at Bard. "I have taught classes before that were not enjoyable but I always woke up looking forward to teaching this class." Also, a cookie enthusiast, he asked students to bring him a batch of cookies whenever they were tardy. The mantra of his class thus became "Remember, no raisins in the cookies."



## HUNGRY FOR THE TRUTH EATING DISORDERS TOPIC OF CHOICE FOR VIROLOGIST

by jordan segal

Amongst virologists and microbiologists, Professor Jessica Akey is an outlier. She got her dissertation on eating disorders and currently studies and teaches health communication (she is an adjunct instructor at the University of Buffalo). At a school such as Bard College, it seems fitting to have a specialist on eating disorders.

Professor Akey was originally attracted to the area of eating disorders because she recognized the emotional struggle of those who have diseases that are misunderstood and stigmatized in society. Akey wants to teach people that "eating disorders are a mental illnesses, and so it is not the sick persons fault," she says.

According to Akey, eating disorders are interesting because they are not really about food - they are about control. In many cases people who are traumatized feel as if they have lost control of their life, so they control the only thing they can, their food consumption. Eating disorders often become an obsession which serve as a way to make sense of the world.

Akey was originally unsure of her place amongst all the other scientists who are on the Citizen Science faculty. She later realized that "what she does is science," even though it is not automatically thought of as such. She admits that her area focuses on people's behaviour more than anything else - but asserts that this is as important an aspect of science as any. "I am a player in health and the scientific community," affirms Akey.

## “US” AND “THEM” THERE ARE ORDINARY MEN, THEN THERE’S CHRIS MOONEY

by kate jackson

Chris Mooney is to science journalism what Mark Zuckerberg is to social media: brilliant, but as scurvy as a pirate. He may be one of *Wired*’s “sexiest geeks”, but for those of us who don’t find a big head oh-so-attractive, he is merely a man with an ego and a microphone. Especially repulsive was the fact that, during his talk, Mooney referred to “the educated” as “us” and the scientifically inept, as he seemed to view the rest of the world, as “them”. The way he presented his information on the failure of America to be scientifically literate openly condemned, yet secretly encouraged, the very source of scientific apathy: a lack of curiosity among the public.

The real failure may be of the educated to assume they know more than they do, and/or to use that to justify the simplification of information, Mooney argued. Most information that does reach the public regarding science has been so simplified as to become offensive, he asserted. If all books were as “dumbed down” as *Twilight*, according to Mooney, people trying to learn would not read, as they would not be challenged.

Doireann Herold, a student in Kate Seip’s Citizen Science class, felt that “in the end he was just calling everyone stupid without giving any concrete solution”. Essentially, Mooney suggested that it was better to give a man a fish rather than teach him how to fish, because he wouldn’t be able to fish without your help.

If the fact that people are not reading scientific literature can be judged a scientific failure, it can also be considered a failure in literacy, which we should be much more concerned about. Do people really not read about science any less often than they read on other subjects, and if so, could the lack of scientific interest in major newspapers be the cause rather than the effect? Sure, newspapers are more often used for Fluffy’s accidents than they are spread out over the average person’s eggs, but the thinning out of the print industry means cuts in all topics, and the

boom of science blogging and websites may actually mean more science literature rather than less.

A girl in the audience, most likely playing devil’s advocate, threw off any ethos Mooney had gathered by asking in the Q&A section what he would say to someone who did not believe in global warming. While he seems to have mastered the art of snark himself, this hypothetical question was apparently lost on Mooney, as he unhelpfully responded with a spurt of antagonistic jokes that insinuated she was an idiot. He stated that, “if everyone was like you, we’d really have a problem”, with a chortle. The speaker in question is actually a Science Scholar here at Bard who simply “wanted to bring him down to our level”, observed Sam Prince, another observer who called BS.

Mooney rather seems to enjoy just pointing out problems without actually addressing them. Mooney is not incapable, just unhelpfully stubborn. Like a politician, he knows how to talk, not how to answer. In effect, what was gained from the lecture fell into two categories: what we should not learn (or, at the very least, should question), and what we should learn, even though it was not taught. One slide, which some students found particularly offensive, asserted that while you could be spiritual and be a scientist, it is an oxymoron to believe in god or intelligent design and be a scientist.

Mooney saw it as “our” duty, if not his, to educate others by understanding science and teaching it to them in a simplified manner. Both of these thoughts seem a tiny bit hypocritical; as a scientist you should be tolerant of others’ ideas, and as a lecturer you should share knowledge. What was learned, even though it was not taught, was that people (i.e. Mooney) will not tell you what you are doing wrong, merely that it is incorrect. Ask questions, and if someone does not answer them, do your own research. That is real scientific education—the ability to ask a question and figure out the answer for yourself.



## THE BUSY SOCIAL LIVES OF CHOLERA BONNIE BASSLER’S BIG BACTERIA BREAKTHROUGH

by dylan cassidy

At her lecture last week, Bonnie Bassler tried to convince the freshmen class of Bard that bacteria are multi-lingual and have the ability to communicate, contrary to popular belief. Starting of her presentation with a friendly and warm aura, she proceeded to explain how the human is made of trillions of cells and are bodies are surrounded by 90% of bacteria constantly, it is evident why her research is so important. Her research focuses on how bacteria use chemical molecules called autoinducers to work together and modify their behavior, known as quorum sensing. After giving an example of how squids use chemicals in the bacteria *Vibrio fischeri* to camouflage themselves by illuminating it’s organs, the freshmen class was thoroughly convinced that bacteria are smarter than they thought. She cleared another bacteria stereotype in our heads, and that is that bacteria actually do more good than bad. Bacteria such as *P. aeruginosa*, *E. carotovora* and *V. harveyi* exist in biofilms, antibiotics and all use quorum sensing as a method to

communicate. “Bacteria are tiny, living in a big world”, says Bassler. She did not want to delve into detail about the chemical process about quorum sensing, and made sarcastic remarks about chemists, implying she has a strong dislike for detailed chemistry. The scary part about Bassler’s research is that bacteria can spread communication and develop new ways to communicate and become stronger and more united in the process. Her goal is to use the research she has on quorum sensing to be able to stop some bacteria from communicating and thus disrupting their spreading more efficiently. Although Bassler was difficult to understand sometimes because she of her fast paced information delivery, she had a friendly and inviting personality and finished her presentation with a summary of what she had explained. She ended her lecture encouraging students to pursue interest in scientific fields except chemistry which she jokingly mocking chemistry once again.

# CIVIC ENGAGEMENT





# CITIZEN SCIENCE // CIVIC ENGAGEMENT



**Top:** Violet Primoff, '14, a High Falls, N.Y., native, teaches a Red Hook Girl Scout how to extract her own DNA to make a DNA necklace Jan. 15. The Girl Scouts, members of Troop 10210 out of Red Hook, N.Y., earned science badges by their participation.

**Right:** Huiyi Chiu, '14, a Subang, Malaysia, native, teaches a Red Hook Girl Scout the intricacies of chromatography, a technique used in laboratories to separate mixtures, Jan. 15.

**Far Right:** Bard College students Melissa Jarrett, '14, of Pittsburgh, Pa., and Dani Dubkin, '14, of Philadelphia, Pa., lead girls of the local Girl Scout troop through a vinegar and baking soda experiment Jan. 15.





**Above:** Bard College student Dylan Hanback, '11, shows the various tools his fellow Bardians will be using to make birdhouses and bat houses Jan. 15 at the Old Gym. "It's about learning to use tools and being comfortable using materials," said Dylan Hanback, a native of Red Hook, N.Y., "These are things you would use in real life. If you have a hole in your wall, you would use these tools."



**Below:** Bard College student Andrew Peterzell, '14, of Shelton, Ct., prints a silk-screen design on a shirt during a civic engagement activity Jan. 15 at Bard College. Students were taught how to silk-screen the shirts, which go toward a student project where Bard's basketball players run weekly basketball clinics for kids in the Hudson Valley.

# CAMPUS LIFE



## NO CIT SCI WINTER WONDERLAND BARD BEFRET OF RECREATIONAL OPTIONS

by lucas opgenorth

When the class of 2014 arrived at the school for the first time in August, they had three whimsical weeks of L&T to romp around in the freshman paradise that was Bard's campus. Unaware of the luxuries of Manor House and the Green Onion, the students enjoyed the highest quality food that has been served at Klein Commons this year. On weekend nights, students gallivanted around campus, sipping from dented cans of PBR that had been gifted to them by the benevolent Beer Ninjas, and migrating between massive outdoor gatherings at Tewksberry Hall and the Kruger Village Quad. New acquaintances were made, David Bowie songs were often sung, and when security eventually arrived, the crowd would simply meander away and find another spot to reconvene.

Beginning January 5, Bard freshmen once again found themselves to be the only students on campus. However, it wasn't long before they realized that this wasn't L&T round two. The food served in Klein took a steep drop in both quality and variety of options, making it particularly difficult for freshmen to readjust to Bard food after several weeks of their parents' home cooking. Freshmen and PC's alike noted that this may be the worst food to come out of Klein this year. As was the case during L&T, Klein was the only dining option covered by Bard's freshman meal plan. However, Down the Road Café was open for all those willing to pay cash for their food.

Without the Smog shows, Tivoli parties, and booty bangers that are often frequented by freshmen, dorm parties became a popular yet problematic source of weekend entertainment. The fact that several Citizen Science teachers were housed in Tewksberry led to security crackdowns on the popular freshman party spot. Numerous students were written up for noise violations and alcohol related offenses. Security was also reported to be instructing students loitering outside of

Tewks to return to their respective dormitories lest they be written up as well. Many students who weren't so lucky with their security encounters were required to attend a meeting in which they were asked to assist in planning Bard sanctioned events since several of those organized by the college were skipped by partygoers. This fiasco, and other broken-up parties, further upset many students who were already frustrated by the Citizen Science program.

Additionally, the snow and cold weather forced many students into their dorms when the temperatures dropped. The area experienced two significant snowstorms that left a thick covering of snow around campus. Also, combinations of sleet and rain created a slippery ice sheet on many walkways. While the school had experienced no blackouts at the time that this article was completed, the weather did shut down shuttle service for a day and force early closures to services such as the library and the Building and Grounds offices. Ken Cooper guided those on campus through the treacherous conditions with his always amusing "Weather-Alert" emails. "Keep your windshield reservoir filled at all times-**DO NOT USE WATER**-use expensive cognac" he recommended in one. However troublesome the weather may have been for some, most students surely enjoyed the snow for sledding, walking out onto frozen parts of the Hudson River and gazing out the window at the picturesque scenery during Citizen Science classes.

While the copious amounts of napping that were made possible by Citizen Science's lack of homework and relatively unintimidating de facto attendance policy were enjoyable, many students found themselves saying "I'm actually getting tired of doing nothing." The return of the other 75% of the student body will be a welcome change to the sleepy energy that has been present on campus during the last three weeks.

# ICE COLD: IS BARD TO BE A POLICE STATE DURING WINTER?

by a bardian

Having been raised in the Southern comfort of central Virginia, I have never been very much of a winter person. Growing up I was satisfied with the chilly but manageable climate and some occasional snow. Before I left to embark on my college career my family and teachers would often warn me, as part of some "Get ready for college" prep talk, about the northern cold. But being an eighteen year old in the twenty-first century, I naturally didn't listen. It was not until my early return to Bard College this winter for Citizen Science that I realized the nature of their caveats. It gets pretty goddamn cold up here.

That is the most noticeable part of student life in Citizen Science: the cold. Students find themselves adding layer after layer of clothing before embarking on a miserable trek to Olin or Kline. Students walking together were often not talkative during these journeys, and moved at a considerably faster pace than usual in a desperate attempt to reach their destination and find relief from the cold outside. I like many other students am a habitual smoker and have found that getting my fix of nicotine has severely been effected by the cold. We smokers stand outside in a circle in the literally two degree weather, huddled in our parkas and scarves, and smoke our cigarettes heavily, though even the hot smoke filling our lungs does little to relieve the cold.

Although it would probably make more sense if we all just stayed bundled up in our respective dorms, an epidemic of cabin fever has swept across campus and students journey out into the freezing winter looking for any excitement. The Citizen Science student is all too familiar with boredom.

Citizen Science has brought out the impatient scholar in me; similar to the one I was in many of my high school courses. I find myself staring at the clock around 4:50, tapping my foot impatiently in the hopes that by doing so time will move faster. The scheduling of Citizen Science is nothing short of bizarre. The program was scheduled without weekends and with very few days off. This has caused the student to become disorientated and impatient, with the only relief available the routine "after hour activities." However there has been a noticeable campus wide increase in the presence of security. Since Citizen Science has been declared a "dry campus," campus security has been cracking down on student gatherings, often breaking them up almost instantly. There is wide range of magnitude to the police-like actions of security. For example, a group of about eight students can be in a room, talking and listening to music with or without alcohol and a security guard will come in, take down everybody's name and make threats of writing students up for ambiguous reasons. I have also

seen a number of security guards sweeping through the larger dorms like Tewksbury and Keen and entering room after room, sometimes without knocking or warning, and going on a spree of scolding, confiscating and harassing. "It all depends upon who you talk to," commented one freshman. "Some security are unreasonable and on a power rampage. But others are actually really nice and generally concerned for your safety. They're just there to make sure that you don't die."

Bard College has drawn much attention to itself by starting the Citizen Science Program, and it could prove a revolutionary reform in how science is taught in this country. This October, President Botstein was a guest on the Colbert Report and spoke about his hopes for the program, an appearance which drew much excitement from the student community. Yet as the Class of 2014, "the guinea pigs," how do we feel to be here? Some are too frustrated by the structure of the program to feel that the program has been beneficial. Yet others take comfort that this is an experience truly unique to their college and one day could have a very significant impact. They also take comfort in the fact that they are among friends who they can share the experience with and although we are pissed off, at least we're pissed off together.

## FEELING SICK, COLD, FRUSTRATED AND BORED DURING CIT SCI

by jessie channell

While filling out the citizen science evaluation at the end of the three week program, I realized I had not learned a single thing. I was tired, sick, cold, and frustrated and after sitting in class watching unrelated movies or debating topics that didn't need debating for six hours a day, I just wanted to start second semester.

My teacher was nice so I felt bad in giving all aspects of the class a one on the one to five scale. I filled the margins with comments expressing my sincere annoyance at having been taken away from my friends and family to learn absolutely nothing. I had some hope for the program and actually I do believe that science is something everyone should know at least a little bit about yet our class lessons were so basic. I may not be a science major but I did take four years of honors and AP science courses throughout high school and that seemed to be the consensus among many I spoke to. Sitting on the floor scooping beans with a spoon seemed like an awfully elementary way of learning natural selection, something I'm pretty sure I actually did learn back in the third grade.

I think the program could have been really great, and maybe could be great in the future, if organized better. Perhaps the teachers could have some sort of plan from the school like during L&T where everyone was given the same binder and everyone was doing the same work. There was a textbook we all got at the beginning of CitSci but mine is still wrapped up since we never opened it during the program. Six hours a day was unnecessary so many teachers let their students out after only an hour or so per session. It was difficult to make the 8:30 am lab time especially since the campus became solid ice for several days during the last week. I will say that the lectures were far better than the symposia required for first year seminar with the exception of Chris Mooney who got by on charm rather than actual intelligence and who actually insulted a student during audience questions.

I hope for the sake of incoming freshman that the program is revised because doing hours worth of EcoBeaker is simply not worth their time.

Want to win \*\$500\* in under 2 minutes?  
Do you like Bard? Do you like making short films?  
The Office of Alumni/ae Affairs announces the  
\*'2 minute film competition'\*  
Details at [annandaleonline.org/filmcontest](http://annandaleonline.org/filmcontest)



## Q&A WITH MATTHEW DEADY

interview by diana crow

Matthew Deady, director of the physics department, was the only Bard faculty to teach Citizen Science. He's been at Bard since 1987 teaching all levels of physics, along with First Year Seminar. He sat down with the FREE PRESS to discuss the program.

**FREE PRESS:** All the other Citizen Science faculty members were brought in from other places. So how did you end up teaching Citizen Science?

**Matthew Deady:** I was involved in designing the program. I was on a committee of faculty that was trying to come up with a plan for a general science education program. When we decided that this was the form it would take, I felt like it was important for me to be in the trenches and see how it was working for myself.

**FP:** So how were the trenches?

**Deady:** I'm an experimental scientist; I'm used to the first time being about what you couldn't have foreseen and keeping your antenna up and looking for student response. It's a lot of gathering data... I'm not trying to be evasive. Trying to say anything definitive would be reacting to my initial feelings rather than something more reasoned out... Everyone came

through it with sort of an amazement that we survived it. I think it's a real tribute to the students who took it seriously and the faculty who brought so much creativity and energy to it.

**FP:** Can you talk a little bit more about your involvement in planning the program?

**Deady:** I was working with a committee of faculty members for two years to come up with something that would be challenging and worthwhile for everyone from the science-phobic student to the student who already knows she wants to be a science major. We were looking at several options, and we weren't really satisfied with any of them, but then the president of the college decided on Christmas Eve 2009 that the idea of an intensive January program was the way to go. So some of us stayed that January to try and flesh it out...

Of course, we knew it would become the brain child of whoever we picked to run it, and then we picked Brooke Jude.

**FP:** You also helped organize a community service activity where Bard students did physics experiments with fourth-graders. So after that experience, what would you say is the difference between teaching Bard students and teaching fourth-

graders?

**Deady:** The language is different. The attention span is different. With the fourth graders, you want to give them the excitement of the activity and see that science is kind of cool. But with Bard students, what you want is to give them the things, the concepts, they need to fill in the blanks themselves and to go beyond just what you covered in class.

**FP:** What were your interactions with the other faculty members like?

**Deady:** They were terrific. I really enjoyed talking to them. I was really impressed with the energy and the creativity they brought to the program...Because they lived together on campus, they turned into a learning community of their own. The conversations I had with them were very much focused on teaching and how do you do better at it.

**FP:** What kind of changes do you think there will be in the Citizen Science program next year?

**Deady:** I think we're going to find better ways of tying it all together, trying more things that show more of the connection between learning science and bringing it outside of the classroom. That's what I'd like to see more of.



# INTERVIEWS //

# CONTEXT

## TALKING TO BARD'S CIT SCI FELLOWS

interview by joey sims

*The Citizen Science Fellows were the four upperclassmen charged, essentially, with two tasks: Making Citizen Science fun, and promoting civic engagement amongst its participants. Not an easy combination to pull off. Nonetheless, the Fellows spent the fall semester planning most of the activities outside the classroom during Citizen Science, and then co-ordinated those activities throughout the program. (They had no involvement with the academic side of the program.)*

*Three of the four fellows - Diana Crow '13, Liza Miller '13 and Stephanie Urugitia '11 - sat down with the FREE PRESS to talk about how their efforts went. (Unfortunately the fourth, Miriam Huppert '13, could not make it thanks to a huge snowfall that morning.)*

**FREE PRESS:** Who took on which responsibilities?

Stephanie Urugitia: We all got certain jobs in certain sub-sections that we were good at. Miriam had the kid's science projects. Diana had the 'tech stuff.'

Diana Crow: I had the blog. But nobody reads the blog. And I got Carl Zimmer to come.

Liza Miller: It was mostly a lot of e-mailing people and seeing if they wanted to participate in the different projects.

**FP:** How much input did you have into what happened?

Liza: All of us in our interviews had ideas which ended up happening. The idea of making beehives was mine.

Diana: Stephanie organized everything that happened on the 15th [January, Civic Engagement Day].

Stephanie: I think Citizen Science had a framework and we filled it in with projects and actual tangible things. They had an idea for a day where everyone would volunteer, so then we found places where students could volunteer: Habitat for Humanity, some shelters and food pantries, some animal shelters, things like that. So that's what I did last semester - I called a lot, harassed a lot, followed up a lot. That was the biggest chunk of it - just calling people, being put on hold for seventeen minutes.

**FP:** Were those organizations enthusiastic, or skeptical?

Stephanie: Some of the places had volunteer time commitments which we had to work around. Thing is, [our idea] was a bit pretentious: 'Could we just come and help for five hours on one day of the year, for a special occasion that might not happen again?' I had a problem with it, because I volunteer a lot, and I think it's all about the time commitment, and going a lot, and actually working on something. So I felt a bit bad doing it, sometimes.

But I got a lot of good responses. Queen's Galley, which is a high-risk homeless shelter, they had never had a Bard student volunteer. And it's in Kingston. So many of these places had never had a Bard student step in. When they told me that, that made me realize - okay, maybe it's not so pretentious, if we can at least get a Bard student to walk in there, and give them the idea that they can come back.

Liza: Maybe it's silly to volunteer for just one day. But hopefully the one day will form relationships with the community partners and make people want to volunteer, maybe on a weekly basis.

Diana: Some of my freshmen friends were saying, 'You guys should have this every other weekend.' Not on this scale, but it should be regular thing. 'Civic Engagement Saturday,' or something. So a lot of them do want to continue it and do more stuff.

**FP:** Stephanie, you got stuck in Guatemala for some of the program, is that right?

Stephanie: [laughs] Well, I'm not going to complain about getting snowed-in in Guatemala, because who's going to complain about that? Yeah, I could not get a flight. I was like, 'oh my shit... I'm the only one with all the numbers, and all this contact info. We are fucked. Saturday is gonna roll through, and nobody is going to show up.' Then I got here, but before I'd left Guatemala I got serious, serious food poisoning. So I got here and I was dying with fever.

**FP:** What's your sense of how freshmen liked Civic Engagement Day?

Diana: They liked it better than their classes.

[all laugh]

"People would give me the weirdest looks. They were like, 'Oh, there goes civic engagement girl.'"

Stephanie: I get the sense that yes, they did like it more than the classes. At some point they [the freshmen at the food pantry] were like, 'Did we do anything substantial?' And I was like, 'Yeah, they need young volunteers here! This is a small place but it requires a lot of work, and there is only two staff.'

Diana: I think it varied a lot with the different projects. Like, Science Night Out [at Mill Road Elementary School] went really well, so the people who went to that really liked it. I think Science Night Out will be a TLS project.

Stephanie: There were just a lot of projects. Civic Engagement Day, there were like 18-20 projects in all, just on that day. So there were just very few hands on desk, so that's why there was so much scrambling. But everything went good. There was a lot of attendance, and that was what we wanted.

Diana: Nobody cried and nobody threw up.

Stephanie: I threw up on Science Night Out.

**FP:** Did you have a lot of problems with attendance?

Diana: A lot of people would sign up and then wouldn't show up. But then other people would just appear and fill in the gaps.

Liza: We were really worried that people wouldn't come out. But I think everything was attended enough.

Stephanie: The only project that didn't have a good attendance were the cooking classes that Chartwells did. That was so weird. Because it wasn't something that required them to leave campus, it had to do with food, and it was very interactive.

Diana: There were supposed to be 10 kids, and only two showed.

Stephanie: And I e-mailed them from Guatemala, telling them to go!

**FP:** There has been a lot of cynicism on campus that you guys have had to deal with.

Liza: That's putting it mildly.

Diana: People would give me the weirdest looks. They were like, 'Oh, there goes civic engagement girl.' But I think it's okay. A lot of people are cynical, but it's not directed at us so much. I hope.

Liza: I think people know it's the first time doing a program, so they're cutting us some slack.

Stephanie: We also just have really dorky ass jobs. It's so dorky!

Diana: Some people are happy. We got some of 'em.

**FP:** What are your roles now that Citizen Science is over?

Stephanie: My job is to graduate and find a job, or pack my bags and go back to the sunny place. [laughs] I don't think there's really much of a follow-up except a reflection of some kind. Other than that, we're just going to do a lot of work, write our 80 page papers...

**FP:** Return to normal life.

Stephanie: 'Life after Citizen Science.' That's what Erin [Cannan] calls it.

Liza: Pass on our knowledge to the next fellows.

Diana: There needs to be two fellow teams, I feel. There needs to be an academic fellows team and a civic engagement fellows team.

Liza: Yeah!

Diana: See, we're strategising for the next one already.

Stephanie: Oh god.

Diana: We should talk to community partners too, and see what they thought! We should make a survey for them!

Stephanie: [looks at phone] I just got friended by my eighth grade social studies teacher. I love Mr. Portland!



# FILLING THAT WINTER GAP

## CIT SCI NOT BARD'S FIRST USE OF THE WINTER INTERCESSION

by joey sims

Many members of the Bard class of 2014 have complained about Citizen Science taking away their winter break. What they may not know is that, once upon a time, Bard demanded more of its students' than just three weeks of one intercession. For decades the college operated a 'Field Period,' a requirement that demanded that all students fulfill a job or internship during three out of their four winter intercessions.

"No one knows about," said Stuart Levine, professor of Psychology and Dean of the College from 1980-2001. Levine first arrived at Bard in 1964, when the field period was an integral part of the Bard experience. "All students were required to have three years of some form of work experience." To accommodate this requirement, the academic calendar was completely different. "We didn't reconvene until the end of February," recalled Levine, making each field period two months long. Field period was first instated by Dean Tewksbury, around the 1930s (exact dates are hard to come by). It was briefly cancelled during the war period, then was reinstated in 1945 and remained in operation until around 1970.

The field period was designed to make practical experience part of Bard's educational experience. "We come from a tradition that believes work experience and internships are an important feature of an undergraduate education," said Levine. "Students did everything. They worked in mental hospitals, they worked in jails. And it was not a difficult matter. Students liked it, and faculty loved the time off."

Practical considerations eventually brought down the program, however. Levine notes that students wishing to work in the summer were at a disadvantage, as the Bard year did

not finish until the end of June. Students and faculty also complained about having school during the baking hot summer months in upstate New York. "So there was a vote in the faculty to do away with field period," recalled Levine, "and revert to a normal academic calendar."

After the field period was removed, winter intercession became what most Bard students now consider it - time off. Students are sometimes encouraged to pursue jobs or internships, and many travel abroad. Yet the five week break, while substantial, was too short for anything substantial to be accomplished.

Evidentially, this was a source of frustration to President Botstein for some time. After Citizen Science was first announced, Botstein defended it by arguing that the winter intercession was not well spent. "If the January term were genuinely an opportunity to earn a lot of money, there would be an argument against interrupting it," Botstein said at the time. "But there is a lot of evidence that the majority of students are not [earning a lot]."

Shades of the field period can be found in Citizen Science. Civic Engagement Day, which required all freshmen to help out locally for one day during the program, is arguably a greatly shrunken version of the Field Period.

Whether Citizen Science is an ideal way to fill the winter intercession remains to be seen - many remain unconvinced. But history suggests that from this college's perspective, the winter weeks are not made for relaxation. They are made for work of another kind.

# LOOKING BACK AT BARD'S FIRST L&T

## DIFFERENCES IN THE TWO SHED LIGHT ON CIT SCI SHORTFALLS

by joey sims

The year is 1981. A young President Leon Botstein, observing a "condition of declining literacy" amongst incoming freshmen, creates a radical new program. The program: Bard's acclaimed Language & Thinking Workshop.

Nearly 20 years later, Bard's class of 2014 has just completed Bard's first Citizen Science program, another program spearheaded by Botstein and designed to address a national issue in education - in this case, scientific illiteracy amongst non-science college graduates.

The comparison is not perfect; obviously the academic components are incomparable, and their scheduling and timing are not alike. The educational context of 2011 is also quite different than that of 20 years ago. Yet a lot can be learnt by looking at the experience of the past month and the experience of August, 1981 side by side.

L&T was met with almost universal hostility by the faculty of the time. "Bard prior to Leon had been a pretty much faculty run school," recalled Bard's Ecumenical Chaplain Ginger Grab, who taught L&T 1981-91. "[And] Leon hadn't been President for very long. So they were very hostile." No faculty member was willing to teach in the program, so it was taught entirely by outside faculty. "There was great conflict on campus," recalled Stuart Levine, professor of psychology, who was Dean of the College at the time.

Students, on the other hand, were far less up in arms. "We never had a lot of complaints from students," said Levine. "The predominant feeling was not cynicism," confirmed Helene Tieger '85, now Bard's College Archivist, who attended the program. "We were willing to give it a shot." When The Observer first reported on the program, it too took a 'wait-and-see' attitude.

In the case of Citizen Science, student response was almost opposite. Students were (and many remain) outraged at the proposal. Many argued it would lead to burn-out in the freshmen class, that campus life would be prohibitive and applicants would be turned off by an additional science focus. The freshmen class attitude throughout the program remained cynical and unhappy. Finding a freshmen with something nice to say about Citizen Science was, by the program's end, a very challenging feat.

Yet faculty response was enthusiastic at best, indifferent at worst. Several Bard faculty were involved with initial planning discussions, such as physics professor Matthew Deady and biology professor Felicia Keesing. Deady signed on to teach in the program (others did not, but mostly for practical reasons). Brooke Jude was encouraged by her fellow faculty

to become director of the program.

The selection of Jude must have pleased science faculty, and quelled any concerns that a biology program would be created without the involvement of the biology program. Yet it also highlights a difference in approach as opposed to L&T. L&T was entirely planned and organized by Peter Elbow, an influential academic who had many radical ideas about ways to teach writing. A recent book by Elbow, *Writing Without Teachers*, argued that the best learning happened through free-writing and removing the professor from the classroom experience.

Elbow's ideas were radical, and many of them were diametrically opposed to President Botstein's. Regardless, he was hired to create the very first L&T, and allowed to bring in a young faculty (most of them in their 30s, like Botstein) entirely of his own choosing. "It transformed the way I thought about teaching," recalled Grab. "Now a lot of other schools teach writing in that way, but at the time it was entirely new."

Yet the first L&T, like the just-completed Citizen Science, was still a first test run. Several bad approaches were identified in that first year, and then dropped. Students

primarily studied Michelangelo's Last Supper - later years focused more on texts. Early morning meetings in Kline where the entire class did free-writing together were abandoned midway through the very first program, after Elbow decided they weren't working.

Still, all involved with the first L&T recall it as an enthralling time. "There was a lot excitement," recalled Tieger. "It seemed to go on into the night." "The key word I'd use is exciting," agreed Grab. "I remember having a lot fun. We [the faculty] did whiffle ball while listening to Edith Piaf."

Much of the difference in the atmosphere on campus during L&T, versus the atmosphere during Citizen Science, can of course be put down to the weather and the cold. But that is not the whole story. L&T was born out of concrete, radical education theories put forward by Peter Elbow. It is hard to find any such strong-minded vision behind Citizen Science. The program's mission and style still feels vague and undetermined. Its goal is clear - to combat scientific illiteracy - but no clear method in reaching this goal has been found. If a stronger vision for Citizen Science is laid out, next year's freshmen might show some of the excitement that this year's did not.



# MOVIES

## THE YEAR IN MOVIES

### LOOKING BACK AT THE TEN BEST MOVIES OF 2010

by *nicholas carbone*



#### **The Social Network**

Aaron Sorkin's fast-paced techy script brims with intelligence as an amazing cast of actors speak them while David Fincher creates a cinematic tour de force. You may not agree with the film's adaptation of Facebook founder Mark Zuckerberg's rise to power, but you can definitely appreciate its meditation on today's new social media and the psychological power of the internet. Jesse Eisenberg perfectly embodies a man full of intellectual genius, geekiness, and misanthropy as he turns friends into a system.

#### **The Ghost Writer**

Roman Polanski's brilliant web of political intrigue and suspenseful allure allows the film to be intensely enjoyable. Pierce Brosnan gives an amazing performance as an ex-prime minister of Britain and Ewan McGregor plays the ghost writer of his memoirs after the first one dies mysteriously. As the new ghost writer learns more about the prime minister he becomes more suspicious about the ex-PM's life and how he came into politics. Polanski's creates a dark atmosphere and evokes an increasing sense of fear and danger that accompanies a fantastic group of actors that include Olivia Williams as the PM's intriguing and sensual wife.

#### **Inception**

Christopher Nolan's visually stunning masterpiece of science fiction dreamery manages to be both a blockbuster action film and an intellectual adventure. The film is technically flawless as the characters display the complexity of their dream heist and the dark, disturbing past of the leader Cobb. The film contains a fair amount of ambiguity and excitement to make it much greater than your average popcorn fare.

#### **The Kids Are All Right**

Lisa Cholodenko directs this amazing family comedy



about family and the difficulties of staying in love. The script brims with wit as you learn about the unconventional family and the kids' search for their sperm donor. Annette Bening and Julianne Moore shine as the parents who struggle to keep everything afloat when the sperm donor enters the picture. Mark Ruffalo also gives the film a necessary masculine-feel that helps to cause hilarious and emotional events to ensue. Overall, it's a joyfully serious film that challenges the formula for a perfect family and wonderfully displays the temperament of middle-class America.

#### **True Grit**

The Coen Brothers turned out another great film this year by taking us into the western genre and display the dark, quirky story of a stubborn young woman (Mattie Ross) getting help from a U.S. Marshal (Rooster Cogburn) to find the man that killed her father. The film is enhanced by the magnificent performances by Hailee Steinfeld, Matt Damon, and Jeff Bridges who is as hilarious as he is dangerous as Rooster Cogburn. Roger Deakins gorgeous cinematography also gives a bleak and wondrous element to the Coen brothers' tensely comic script.

#### **Toy Story 3**

Pixar delivers yet again as they bring us back to the toys of our childhood to see what happens to them when their owner Andy grows up and gets ready for college. This magnificent sequel deals with the themes of loss, coming of age, intemperance, and love unlike any other film this year. Toy Story 3 deserves to be the most commercially successful movie of the year because of how accessible it is while also being so complex.

#### **I Am Love**

Tilda Swinton is flawless as the matriarch of a wealthy family at the turn of the century in Milan who re-examines her marriage into the Recchi family when she becomes



interested in another man. Luca Guadagnino directs this lush, elegant soap opera that layers on the complexities of this haute bourgeoisie family as it simultaneously falls apart through the forces of passion. John Adams powerful score sets the icy and explosive atmosphere of the Recchi family as they face changing times and fortunes.

#### **127 Hours**

Danny Boyle excitedly directs this true story about the resiliency of the human spirit during a treacherous experience. James Franco works wonders as a man who gets stuck rock climbing and must figure out what to do to survive. 127 Hours is technically amazing as Boyle goes through the physical and psychological trauma of the main character.

#### **Black Swan**

Crazy is one way to describe the film's main character Nina as it gets closer to the opening of the ballet Swan Lake where she will be playing both leading roles of the white and black swan. Natalie Portman gives a career-best performance as Nina and brilliantly holds the film together as her character spirals into madness. I particularly enjoyed the way Aronofsky directed the early scenes with a flair of early Scorsese and his later more melodramatic scenes with an early Polanski influence that allowed the two parts of the film to differentiate well.

#### **Scott Pilgrim vs. The World**

The ultimate film of our generation. Pop culture references abound as the film engulfs your mind into a comic book geek heaven and never lets you go. A cinematically dazzling and hilarious view of what a teen will do to win his heart's desire. Director Edgar Wright daringly creates a world filled with impossibility and gives us something sweet, genuine, and wildly entertaining.

# I AM THE TRUE BLACK INCEPTION IN WINTER'S EYES

## THE TOP 10 MOVIES OF THE YEAR - ANOTHER TAKE

by elena watson

### 1. Greenberg:

Watch this movie if you want to see Ben Stiller not being Ben Stiller. Also watch it if you want a movie about real people, without the careful airbrushing, six layers of makeup, and freeze-dried witty dialogue that Hollywood substitutes for reality. Greenberg is one of the few movies I've seen that's been able to successfully imitate real life, and actually stay funny at the same time.

### 2. Micmacs:

The latest movie by the French director of "Amelie" is charming and whimsical almost to a fault. What saves it from crossing the line into sappiness is its originality, creativity, and the political issues it (briefly) touches on. Bazil, a kind of French Charlie Chaplin, sets out to take his personal revenge on a pair of arms dealers, with the help of his rather eccentric friends.

### 3. Inception:

Ok, this one's kind of a shoe-in. If you've seen it you probably don't need any convincing why it's great, and if you haven't, you're probably not going to. But seriously, this movie has it all: a completely original, impossibly intricate plot, gorgeous scenery, and Joseph Gordon Levitt in a fist fight in zero gravity. Come on.

### 4. I Am Love:

This is one of those cases of the leading actor shouldering not just the burden of their role, but of the entire movie. Tilda Swinton has obviously given this part her all, exposing every inch of her character's body and soul, and effectively learning both Italian and Russian, two languages she didn't speak when she signed on to the movie. Her hyper-dramatic performance as the struggling matriarch of a crumbling Italian family is not something to be missed.

### 5. Winter's Bone:

This movie has everything an indie-lover could want—a virtually unknown cast, super low-budget filming, and real locals from a tiny Arkansas town cast as extras. Jennifer Lawrence plays Ree, a tough sixteen year old native of the Ozark mountains, in search of her meth-cooking father. See it for the stellar acting, the perfectly expressed drama, or the edge-of-your-seat suspense, but please, just make sure you see it.

### 6. The Black Swan:

A seriously disturbing and seriously beautiful movie. The storyline is trippy and convoluted, the cinematography is all black, white, and red, and out of all the well-acted characters, there's not a sympathetic one in the bunch. Natalie Portman plays a frail ballerina who, already mentally unbalanced, is torn apart by the stress of preparing for the infamous Swan Lake ballet.

### 7. The Fighter:

This could have easily become yet another cliché boxing movie—tough, soft-spoken hero, "insurmountable" odds, and a rags-to-riches plot, based on a true story. But great acting across the board, as well as the stark backdrop of gritty, 90's era Lowell, Massachusetts, make "The Fighter" stand out. Mark Wahlberg stars as the gentle, hard-working fighter in question, Amy Adams is unusually un-sweet as his girlfriend, and Christian Bale undeniably steals the movie as his crack-addicted brother.

### 8. The Social Network:

Another obvious choice. An extremely fun drama about Facebook's controversial creation, it's very slick, almost airtight. Each shot is flawlessly composed and executed, not one character is miscast, and the witty dialogue feels almost hyper-real. Although over two hours long, when it ends you're sorry the ride's over.

### 9. True Grit:

This revenge story, while it has all the blood, guts, and black humor we've come to associate with a Cohen Brothers movie, is also distinguished by its 19th

century setting and tall-tale feel. The characters speak absurdly formally, hardly ever using contractions, and, unlike say " Fargo" or " Burn After Reading," there's a funny sense of honor in all that killing.

### 10. The Secret in Their Eyes:

Ok, I'm kind of cheating because this movie came out in Argentina in 2009. But it only came to my town last summer, and it's kind of amazing so bear with me. "The Secret in Their Eyes" is a brilliantly crafted thriller that, although it's hard to watch at times, will stay with you for days. It questions the idea of real justice, and keeps you guessing until the end.

## THE FIVE WORST MOVIES OF 2010

by nicholas carbone



### Sex and The City 2

As a fan of the Sex and the City television show and first film, I found this sequel to be completely unnecessary and mindless. There does not seem to be much of a conflict going on in the film other than going to Abu Dhabi and having to spend some time there. Nothing really changes in the lives of any of the characters because the writers must not have wanted to change the happy ending of the first film, which begs the question: Why make another then?



### Clash of the Titans

I found it extremely difficult to get into the plot of Clash of the Titans because of the lack of plot, the horrible dialogue, the bad acting, and the messy special effects. Liam Neeson looked absolutely ridiculous with his shiny clothing and the crazy creatures were plain stupid as the popped into the film.



### The Bounty Hunter

This is one of the many stupid action-comedy movies that came out this year to tarnish the name of film. Somehow I watched this film even though I knew what was going to happen each scene. Gerard Butler and Jennifer Aniston have no chemistry as they continually bicker while actions scenes occur around them. Thank you hollywood for this assembly-line action-comedy that I keep wishing to forget about.



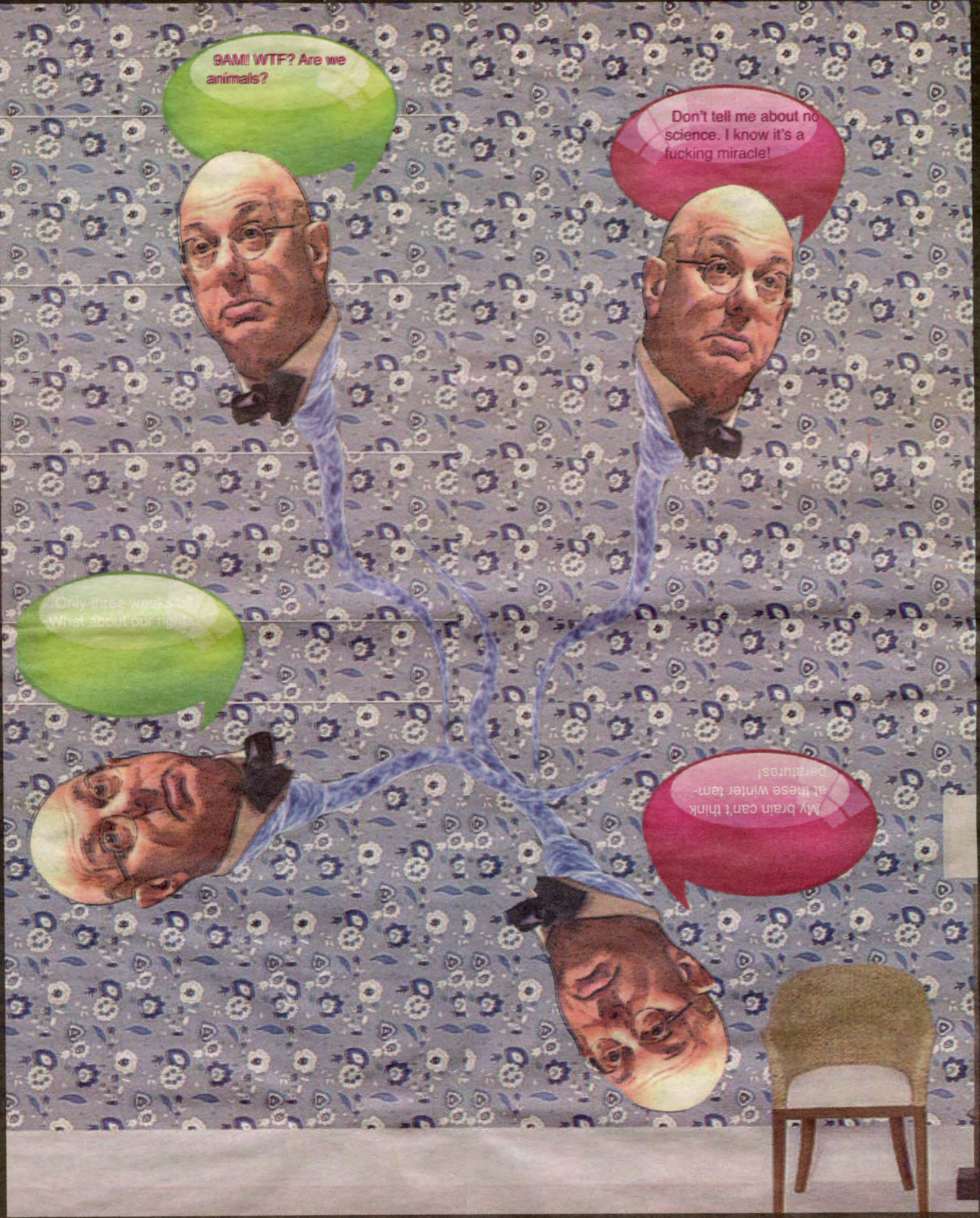
### The Killer Inside Me

Michael Winterbottom directs this psychological film noir that fails to keep my interest as he shows us the point of view of a killer. I cannot help but find the story contrived and banal as I watch the slow moving action of Casey Affleck's character. It's as if this movie has the capacity to find the snorer inside me. I do not know how I managed to stay awake throughout this boring mess of a movie.



### The Tourist

Sorry Johnny Depp, Ricky Gervais was right, your movie did not deserve any Golden Globe nominations. This film from the director of The Lives of Others decided to follow up his academy award winning foreign film with this clunker of an action drama. The story centers on a woman picking up a tourist as she hides out in Italy waiting for her spy husband. The film does not contain much action or much interest as Depp's and Jolie's characters get to know each other. The romance in the film is contrived and the actors involved in the film are wasted.



9AM! WTF? Are we animals?

Don't tell me about no science. I know it's a fucking miracle!

Only three weeks left! What about our rights?

My brain can't think at these winter temperatures!

# The Citizen Science Issue