Ellie Ott, an undergraduate political science major, conducted a research effort as a student in a senior political science seminar. She was particularly interested in whether House-to-Senate career transitions in recent times have been better than earlier in U.S. history.

After graduating from Pitt, Ott, a Truman-Albright fellow, took a position as a social science research fellow in the U.S. Department of Health and Human Services’ Administration for Children and Families. Overseeing projects related to teenage pregnancy prevention and domestic violence prevention, she also examined ways to collaborate with the Office of Refugee Resettlement.

Around the time of her senior political science seminar, Ott was trying to narrow down a topic for her dissertation. She was interested in the career paths of people elected to the U.S. Senate. She was particularly concerned with whether or not these people had first served in the House of Representatives or vice versa. The hypothesis she was exploring was the notion of whether one chamber of Congress was viewed as more prestigious than the other and whether these views might have changed over time. She spent many hours in the library (this was pre-Internet) studying other countries and the United Nations. She was trying to explore was the notion of whether one chamber of Congress was viewed as more prestigious than the other and whether these views might have changed over time. She spent many hours in the library (this was pre-Internet) studying other countries and the United Nations. She was trying to explore was the notion of whether one chamber of Congress was viewed as more prestigious than the other and whether these views might have changed over time.

During her research, she also examined ways to collaborate with the Office of Refugee Resettlement. She worked with youths in local schools. She was an aide to the University Honors College is pleased to share the news that Ellie Ott was selected as a 2010 Rhodes scholar. A Lawrence, Kan., native, Ott was a Chancellor’s scholar who earned a BA in French and history and a BS in chemistry in 2009. That was special because she described herself as “fierce.” After the interview, then Dean G. Alec Stewart whispered to me, “I smell a Rhodes.” Doc’s prescience was borne out not only in this case but also in Ott’s being awarded a Truman Scholarship in 2008. As a result of the Rhodes Scholarship, she will study forced migration and evidence-based social intervention, refugee and migration issues, and social science research methods at the University of Oxford.

...
Undergrad scholars develop multifaceted skills

In considering the role of research in undergraduate education, I thought about the foundation in research skills that undergraduates gain through their participation in such programs. These skills prepare students to move into the more focused community of scholars in graduate studies. The relationships formed with faculty mentors certainly help to increase students’ understanding of an academic discipline beyond technical proficiencies. The relationship also gives faculty the in-depth understanding of the student, which can help a professor write a student an expansive recommendation letter for graduate school. But as I examined this subject further, I discovered that participation in undergraduate research may play a larger role in the academic lives of these students than merely obtaining discipline-specific experience or preparing one for graduate school.

The National Conferences on Undergraduate Research (www.ncur.org) maintains that undergraduate research is crucial to pedagogy in the 21st century, citing evidence that inquiry-based learning (which encompasses all aspects of research, including creative endeavors) fosters increased levels of student learning. Undergraduate research, then, enhances not only disciplinary skills but also skills that can be transferred to other domains, allowing for added benefits in academic areas outside a student’s specialization. These skills may include improved critical thinking and even self-management skills associated with organization and discipline, which are necessary to complete a research project. In my experience, some of the undergraduates who are best at time management are elite student-athletes. Such a skill is developed through years of experience in balancing training with other aspects of the person’s life. Similarly, sustained, in-depth participation in undergraduate research of the kind fostered by the University Honors College (UHC) may facilitate the development of an “elite undergraduate scholar” through gaining expertise in both an academic field and in self-management skills.

Additionally, emergent research cited by the American Psychological Association in the March 2010 issue of Monitor on Psychology suggests that today’s college students—the so-called Millennials or Generation Y—can especially benefit from undergraduate research. This population responds better to multifaceted forms of learning that are relevant to their lives. Undergraduate research opportunities provide exactly this form of learning experience—a complement to the traditional in-class setting—which enhances students’ overall educational experiences. Also, the tendency of Millennials to be experiential learners who seek to apply ideas to real-world situations resonates with many aspects of the undergraduate research model.

In sum, the goal of undergraduate research is not to focus students narrowly. Rather, participation in undergraduate research has the potential to integrate seamlessly into many aspects of their lives, promoting the hallmark of UHC: student attainment.

David Hornyak
Director of Advising
University Honors College

Adventure and discovery await the ambitious student

When I was an undergraduate student, I took a three-credit course in organic chemistry. I thought the teacher of that course was terrific (I will do), and I thought it would be an interesting and fun experience to work in his lab. I was very pleased when he agreed to take me into his lab, but I was very surprised when all he wanted me to do was wash dishes and run errands. When I expressed my disappointment, he pointed out that I was a freshman and that young undergraduates tended to be irresponsible, unprepared, inexperienced, and generally uneducated. In other words, they had little to offer and certainly couldn’t be trusted in a research laboratory. I knew who he had in mind: many of my fraternity brothers. But not all of them, and not me.

It wasn’t until years later, after I had become an academic scientist, that I understood that to a faculty member, research often provides the supreme intellectual challenge: to define and solve a problem that had never been solved before in the history of the world. Is there a greater challenge? Who dares to attempt such a task? It demands a single-minded focus that can occupy all of your waking hours for the rest of your life. In return, there is the potential for personal growth as you learn better how to figure things out, to think clearly, and to extract insights and information from earlier investigations, but the journey itself provides the major source of satisfaction because this abstract puzzle does not necessarily yield to prolonged labor, like puzzles of the crossword and Sudoku variety; there may be cherished gains but no guarantees of ultimate success.

Should undergraduate students be introduced to such a challenge? Are they messageable and disciplined enough? Are they sufficiently knowledgeable and respectful? Can they understand that scientific facts and ideas do not come out of textbooks but were put into textbooks after scientists conducted laboratory research and thought deeply about their work? Can they be taught to conduct such research and ruminant about their findings, integrating them with the observations and ideas of the untold others who preceded them? Can they work independently and interdependently with laboratory colleagues, sharing equipment and ideas and working space? Perhaps not all 18- to 22-year-olds are up to the task, or want to be, but surely some number of students is ready and eager to have a go at it, to experience an intellectual challenge more demanding and stimulating than the best classroom experience can be.

The decision to put basic laboratory research on college campuses, rather than sequester it in nonacademic research institutes, provides the colleges with instructors who are at the cutting edge of knowledge in their disciplines. Academic research laboratories similarly provide the undergraduate student with the opportunity to work with and learn directly from such investigators, with the same opportunity as their mentors for personal development, for discovery (especially self-discovery), for stimulation, and for satisfaction. It may not be for everyone, but with proper mentorship, hard work, and a bit of luck, it can be a singular adventure and a life-changing experience. My college professor ultimately gave me that opportunity and provided the mentorship that initially inspired and guided my career in research. That laboratory experience may have been the most important benefit of my undergraduate education.

Ed Stricker
Distinguished University Professor, Department of Neuroscience

Research opportunities build credentials

I have been lucky to have had many undergraduate students working in my lab since I have been at the University of Pittsburgh. I believe the number is in the high 20%. Many of them were recommended by former UHC Dean G. Alec Stewart, and some came from other channels. I believe that undergraduate research is a quintessential part of any science or engineering education, one that can shape the career of a student in positive ways. Research gives students a solid understanding of why they are learning the material. It also helps to motivate them so that they perform better academically.

The best time for students to begin research is during the summer. There are many funding sources to help finance research, and students can immerse themselves fully. Later, during the academic terms, students can continue to do research at a lower level of intensity and resume with full vigor in future summers. When applying to graduate programs, research experience (and publications, if they happen) can greatly boost the chances of admission to top graduate research programs.

Jeremy Levy
Professor, Department of Physics and Astronomy
At the Carnegie Museum of Natural History, we take pride in working with undergraduate students every day in our scientific sections. Many students today will participate in a study abroad experience, hold an internship, and work in depth with a faculty member on a research project. In this framework, research must be understood in a broad sense that includes the natural sciences, social sciences, and the humanities. Research in these fields is reflected in scholarly and creative activities in addition to experimental work in a laboratory. Undergraduate research serves three main purposes. First, undergraduate research allows faculty to teach in a discipline the way the discipline is actually practiced. For example, bringing students early in their undergraduate careers to computer simulations of mathematical problems exposes them to how large parts of sophisticated, advanced mathematics are actually done. In addition, undergraduate research promotes curiosity and inquisitiveness among our students. This can be seen when students work alongside a faculty member for the first time exploring a previously unknown aspect of Mayan architecture; there is a certain sense of amazement that motivates students to satisfy their intellectual curiosity. Curiosity drives students to delve into a field in which their lack of experience is no obstacle to serious work. Finally, undergraduate research prepares our students for their next step after graduation, whether that is graduate or professional school or entering the workforce. Undergraduate research builds confidence, independence, creativity, collaborative skills, discipline, and tenacity, all of which serve students well as they continue their academic and professional lives.

Sandra L. Olsen, PhD
Head, Section of Anthropology
Carnegie Museum of Natural History

Thoughts on undergraduate research, scholarship, and creative endeavors

An excellent undergraduate education must include academic and creative activities that go above and beyond the classroom. Many students today will participate in study abroad experiences, hold internships, and work in depth with a faculty member on a research project. In this framework, research must be understood in a broad sense that includes the natural sciences, social sciences, and the humanities. Research in these fields is reflected in scholarly and creative activities in addition to experimental work in a laboratory. Undergraduate research serves three main purposes. First, undergraduate research allows faculty to teach in a discipline the way the discipline is actually practiced. For example, bringing students early in their undergraduate careers to computer simulations of mathematical problems exposes them to how large parts of sophisticated, advanced mathematics are actually done. In addition, undergraduate research promotes curiosity and inquisitiveness among our students. This can be seen when students work alongside a faculty member for the first time exploring a previously unknown aspect of Mayan architecture; there is a certain sense of amazement that motivates students to satisfy their intellectual curiosity. Curiosity drives students to delve into a field in which their lack of experience is no obstacle to serious work. Finally, undergraduate research prepares our students for their next step after graduation, whether that is graduate or professional school or entering the workforce. Undergraduate research builds confidence, independence, creativity, collaborative skills, discipline, and tenacity, all of which serve students well as they continue their academic and professional lives.

Juan Manfredi
Vice Provost for Undergraduate Studies

Research opportunities at the Carnegie Museum of Natural History

At the Carnegie Museum of Natural History, we take pride in working with undergraduate students every day in our scientific sections. The roles they play take many forms, from volunteer to intern to work-study to part-time employee. Many work with the same scientists for two or more years, establishing collegial relationships that can continue throughout their careers. We frequently take undergrads in the field with us to collect data on any of our various subjects of research, including ones in life sciences, paleontology, and anthropology. Back in Pittsburgh, Pitt undergraduates perform a wide range of museum duties; many students are linked specifically to research on the museum’s extensive scientific collections. These projects can lead to publications as well as to papers and posters at international conferences. The benefits are mutual, with undergrads having research opportunities around the world while our scientists gain extra labor resources and feel a deep sense of satisfaction in training future stars. For undergraduates, the advantages, of course, include gaining experience in a new field, learning state-of-the-art techniques, and applying their own talents in innovative ways. In addition, graduate schools are becoming increasingly more competitive and they are eager to find ways to sort out the most gifted students. Accumulating a list of impressive experiences in their field beyond the classroom can give prospective graduate students that necessary edge over their competitors.

Through the years, UHC has been an important resource for our museum, and in return, we have offered countless undergraduates the chance to advance their research training. In my field, archaeology, we always appreciate the hard work that undergraduates provide, and their enthusiasm can be downright contagious. I have worked with UHC students in Mongolia and Kazakhstan, and they have helped me in my lab in Pittsburgh to analyze the oldest known domesticated horse bones in the world. Currently, one of the students is assisting in my analysis of Saudi Arabian rock art, and I hope to be able to take him into the field the next time I go. Another undergraduate is about to help me set up Web pages on our Chinese oracle bones that were recently studied by a visiting Chinese scholar. The list could go on and on because all of our curators have worked with Pitt undergraduates, and we look forward to many new projects in the years to come.

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Sandra L. Olsen, PhD
Head, Section of Anthropology
Carnegie Museum of Natural History

Juan Manfredi
Vice Provost for Undergraduate Studies
Brackenridge Summer Research Fellowship

One of the most gratifying aspects of the Brackenridge Summer Research Fellowship is the opportunity it affords undergraduates to cultivate meaningful relationships with experts in their fields. What follows are comments about the impact of undergraduate research from three former fellows and their faculty mentors, with an introduction by UHC Director of Academic Affairs Nate Hilberg.

Nate Hilberg
Director of Academic Affairs, University Honors College, University of Pittsburgh

It’s the beginning of February 2010, and I peer out at the faces of several dozen undergraduates who are eager to find out about the Brackenridge Summer Research Fellowship. The setting is our annual information session, held in the University Honors College, where students can learn more about this program for undergraduates across the University. Invariably, students want to know how they can make their applications maximally competitive. That I cannot give as straight an answer as they would like is indicative of the beauty of the Brackenridge program. I explain to them that when reading their proposals, while we are concerned with the content of what they write, we are at least as concerned with how they write it. All the Brackenridge Program applications include a letter of support from a faculty sponsor, so we rely on faculty to oversee the content of the proposal. However, that students gain mastery in their content area is only one of the goals of Brackenridge. What is distinctive about the Brackenridge program is the emphasis on an interdisciplinary community. Applicants are selected for how well their proposals indicate that they are sensitive to the presence of people who are not specialists in their academic area. I tell people at the information session that we assume that they would do work that would impress specialists in their field; the applicants who set themselves apart are those who show an ability and willingness to reach out to the nonspecialist. Thus, as I aim to convey at these information sessions, a central goal of the Brackenridge Program is accessibility for nonspecialists, reflecting the goal of intellectual breadth appropriate to undergraduate education.

Forty students, or roughly one-third of the typical pool of applicants, are awarded Brackenridge Fellowships each year. Weekly meetings begin in mid-May, usually with three students presenting their research at each meeting. These presentations last around 30–40 minutes and then, demonstrating that students really do have interest in work outside their own fields, the question-and-answer periods usually last at least that long. The spirited nature of these discussions helps presenters to grapple with fundamental issues in their fields and helps audience members learn what the fundamental issues are in fields other than their own.

One of the highlights of the summer is the annual retreat at the University of Pittsburgh at Johnstown. We arrive at the Johnstown campus on a Monday morning and leave Thursday afternoon. The days are filled with research presentations. The rest of the time is filled with kindred spirits getting to know each other and fun, intellectual and otherwise, including soccer and ultimate Frisbee. Dean G. Alec Stewart and I also have led discussions based on a common reading about the role of research in undergraduate education. Students often are surprised to learn that the administrators of this program view research as a straight answer to the question of the prominence of research in the modern university, with the attention faculty must devote to research rather than teaching, might be detrimental to undergraduate education. Ideally, we have concluded, the relationship between research and teaching can be symbiotic such that students and faculty can benefit from what can be complementary intellectual ventures.

Supplemental Monday meetings are a recent addition to the Brackenridge program. We began having these meetings when we learned that some of the Brackenridge fellows were having impromptu meetings at local coffee shops to discuss issues associated with their research. While we thought it was wonderful that these students couldn’t get enough Brackenridge, we thought it was unfortunate that these discussions relied upon the availability of tables at coffee shops. So we provided a venue to help facilitate these supplemental meetings. One meeting involved having faculty members selected by the Brackenridge fellows talk about their research interests as well as how they viewed the role of research in undergraduate education. After having led one of these discussions, Distinguished Professor Paul B. Bove was impressed with how appropriate it would be to have a course that would serve the needs of those intellectually curious students. From this meeting, the UHC Great Books course, taught by Bove, emerged. These supplemental meetings, the attendance for which is completely voluntary, have been tremendously successful in terms of student participation and engagement. The enthusiasm generated for these meetings is no doubt helped by the fact that we often meet in the Babcock Room on the 40th Floor of the Cathedral of Learning.

By the end of the summer, students will have produced an abstract, a poster, and a final paper describing the results of their research over the summer. The abstracts are compiled in a booklet by a student facilitator who also helps with the day-to-day concerns of the program; more importantly, though, these student facilitators help to set a tone of intellectual fun for the community. We keep these booklets in UHC for posterity as well as for people to peruse and keep if they like. These booklets also proved to be an effective recruiting tool, especially in the process of interviewing candidates for the Chancellor’s Scholarship, with whom we share them.

A striking feature of this interdisciplinary community is that it enhances the disciplinary depth of those who participate in it. We see this in the great number of Brackenridge fellows who go on to complete departmental thesis or the Bachelor of Philosophy degree. Further testimony to the success of the Brackenridge program can be seen in connection with the School of Arts and Sciences. Various benefactors impressed by Brackenridge have donated money to the School of Arts and Sciences to fund undergraduate research, with participation in the program a condition of the funding. Thus, we see that the values of disciplinary depth and intellectual breadth, fostered by a UHC community of undergraduate researchers, are alive and well at Pitt.

Kathleen Allen and Josh Cannon on ANTHROPOLOGY AND ARCHAEOLOGY

Kathleen Allen
Lecturer, Department of Anthropology, School of Arts and Sciences, University of Pittsburgh

Involvement in research is a key component of a complete education in anthropology here at the University of Pittsburgh. Students in our discipline have engaged in anthropological analyses of cultural material from domestic contexts in nearby prehistoric Iroquois sites as well as in Asia and Latin America; and ethnographic research in Mexico, Nigeria, and Honduras as well as close to home in West Virginia and Pennsylvania. We encourage students to conduct independent research projects so they can hone the skills they learn in formal courses through developing research questions and doing analyses on material they are enthusiastic about investigating. Students work closely with faculty mentors on their projects so they receive the guidance needed to successfully complete their research. The skills they practice in doing research are easily transferred to other disciplines and professional work as well. In many cases, this research serves as the culmination of their undergraduate work, where they can apply many of the ideas they learn about in lectures, readings, and discussions to real-world research experience. Our best students are increasingly competitive as they apply to the best graduate institutions and often are accepted with funding for their graduate work.

All students are encouraged to engage in research. Those who take advantage of the opportunities become part of a close-knit community where they can share their research skills and enthusiasm for the field of research. They are thrilled to recognize that they can critically evaluate the work of other researchers and develop plans to further the understanding of human behavior and the influence of cultural practices on it. I enjoy working with students as they learn to conduct research; I see them grow and develop in ways I would not have anticipated prior to my more direct involvement with them in guiding their research projects.

Josh Cannon (A&S ’10)
First-year PhD student, Department of Near Eastern Languages and Civilizations, University of Chicago

My research focused on ancient centers of production in a Turkish archaeological site called Karatay. This site is more than

(Continued on page 8)
Lauren Buches and Alex Orbach on RELIGION AND HISTORY

My Brackenridge research project was a comparison of civil religion in Nazi Germany and modern Israel. Card religion involves the use of symbols (such as flags or national heroes), rituals (such as national holidays), and belief systems (such as an ethnicity's connection to a certain territory) to create patriotic sentiments bordering on the religious.

Upon announcing my research topic at the first weekly Brackenridge meeting, I was bombarded with questions: What, exactly, was civil religion? How could Nazi Germany ever be compared to modern Israel? Much to my chagrin, my explanation to several students, especially those outside the humanities or social sciences, did not sufficiently clarify the topic.

This questioning, however, was precisely what I needed to help direct my research. I observed how my peers effectively presented their complex ideas. I talked further to those who had not understood my topic to find the source of their confusion. I made use of common examples to which my audience could relate, such as American civil religion, to demonstrate how Nazi Germany and modern Israel had used similar methods for their own civil religions.

Thanks to the help of my peers, my presentation not only clarified my topic, it also led to more direction in my research, as they suggested books and ideas relevant to the project.

Outside the weekly meetings, academic discussion mixed with social and physical activity made us close. At the Johnstown retreat, we discussed the definition of economic externalities at lunch and then gave each other bruises in intense soccer games. It’s not just the common experience of the Brackenridge Program that brought us together; we all loved to learn about subjects of which we had no knowledge. We were all open to new, strange, and exciting ideas. It is one of the rarest experiences students can have in their entire academic career.

Omar Ayyash and Lewis Jacobson on BIOLOGICAL SCIENCES

The Lewis Jacobson lab as a whole focuses on what is known as protein turnover. This process encompasses both protein synthesis and protein degradation. While protein synthesis has been well characterized, it wasn’t until relatively recently that scientists recognized that protein degradation is not a random or dead-end process but rather is highly specific, tightly regulated, and temporally controlled. I had been working in the Jacobson lab for almost three years, but that hardly meant that things have gotten easier—in fact, it was quite the contrary. Seniority among the undergraduates brought higher expectations. This meant it wasn’t enough just to run experiments and go through the motions. A deeper understanding of the scientific method, which is to say the reasoning behind the experimental setup, was not simply encouraged but demanded. Mistakes were scrutinized, and any shortcomings that might have been the culprit, both in the lab and outside it, could have resulted in either explicit argument or implicit warning veiled behind a quiet look of disappointment, both of which were equally effective in motivating students to work harder if used under the right circumstances. Personally, my experiences with the Brackenridge Fellowship helped me further understand the nature of my own research, which involved looking at the effects of aberrations in the regulation of the mitogen-activated protein kinase signaling pathway on protein turnover.

A big part of the Brackenridge program is the weekly seminars during which students present their work. Interestingly, I found that presenting my research to different audiences offered very distinct results. For example, it was my experience that when presenting to other scientists, the presentations, along with the questions asked by the audience, became very technical. This, of course, has its value because it allows the researcher to defend his or her method of analysis or revise his or her experimental procedure in response to the suggestions of the audience. In this way, the researcher benefits by improving his or her techniques and troubleshooting any problems by picking the brains of highly qualified scientists. When presenting to an audience that has only a casual interest in the subject matter, on the other hand, absolutely nothing can be assumed. Key words and concepts must be defined concisely and precisely so that the audience isn’t distracted by tangential minutiae. While working with the interdisciplinary community of Brackenridge fellows, I realized that I had to question every aspect of my presentation and, by extension, my project. I delved deeper into the meaning of jargon I had long since taken for granted by extension, my project. I delved deeper into the meaning of jargon I had long since taken for granted, and ultimately narrowed the focus and purpose of my own research through the simple act of preparing a presentation. Furthermore, because Brackenridge scholars come from different disciplines, their questions tend to be more concerned with the why rather than the how, which is valuable because, in the course of hours of lab work on individual experiments, the big picture is easily obscured. In short, the program ultimately allowed me to understand better the theory behind my own project while simultaneously allowing me to show the other students how approachable and accessible scientific research can be.
Research Projects Spark Creativity, Problem Solving, Personal Development

In spring 2010, Provost (now Provost Emeritus) James V. Maher sat down with then senior Erik Hinton (A&S ’10) for an interview about undergraduate research at the University of Pittsburgh. What follows is a perspective on how this opportunity has evolved in recent years that should prove fascinating.

Erik Hinton: What are your prescriptions for generally good undergraduate research? What have you learned during your tenure here?

James V. Maher: I would say that that is a complicated question and I don’t know how to give a simple answer to it. My personal experience has been with running my own physics lab. Maybe I could at least start talking about that experience and then branch out from there.

I find that no matter how talented the student is, just about every student can profit from being involved with a research group. A very rare number, but a few, come in really unusually able to lock on to what a research group is trying to accomplish and think of things to be done. And they, of course, belong in a research group already, and it would be holding them back to not include them. The others, though, in addition to whatever they are going to learn about the field in their formal academic work, really need to learn about how people in that field think about solving problems and why they think that way: What is it about their methodology that has worked on problems in the past and thus is considered to be likely to result in success with that field’s problems in the future? You don’t usually get that just out of books; you get that from spending time with people who practice that field. So, I like having people in their undergraduate years spend time in research groups—most of the time will be spent with graduate students, but some of the time will be spent with faculty, and the net effect is that the undergraduate gets a feeling for how people think of problems and how to make progress with problems. Even if they themselves don’t feel ready yet to suggest solutions to problems, they absorb a lot of the way of thinking, and I consider it to be a very important part of their education.

Hinton: Obviously there is a split between how research is done in the sciences and how it is done in the humanities. What are the advantages and disadvantages of each style of research?

Maher: Those are issues that are not just for undergraduate research, those are issues for graduate research as well. That’s the other extreme. Physics is highly social in terms of how problems get addressed. The humanities are highly individual in terms of how problems get addressed. Even advanced graduate students in the humanities do not spend anything like the amount of time with their thesis advisor that a scientist would. That does make it harder to include undergraduates and it makes it harder to keep the time to a PhD down for the humanities graduate students.

I feel that I have to accept the judgment of the people in a given discipline about what is the best way to pursue that discipline. But I do think that for students at all levels, both graduate and undergraduate, extra time in the presence of more sophisticated minds that are thinking about problems in the same field is an invaluable help to their research. So, I try to do what I can to encourage that without trying to twist arms to change the way the discipline is pursued.

Hinton: Can interdisciplinary research help to combine the best aspects and attitudes of both styles of research—that of the humanities and the sciences?

Maher: Let me change the question a little bit. I think there are lots of problems that can be posed that are intellectually fascinating that can’t be pursued through the methodology of any one existing discipline. We have been pursuing those in recent years in a mode we have been calling multidisciplinary. They used to call them interdisciplinary, meaning that one person would know both fields. I think in general that didn’t work out too well. You got people who were generally not very good at either field. We have been trying to do it with teamwork. We get people who really are experts in their fields and are interested enough in the problem that they are willing to work with others who bring other kinds of expertise. I think there has been progress on a number of such problems. That does make the research style more social, because there is more than one person who is involved and crucial to the team. Where the humanities have worked with the social sciences or the natural sciences on such problems, that has, perforce, modified the humanities style. There might be any number of interesting examples in the Center for the Philosophy of Science, especially when you get into issues of the philosophy of the biological and social sciences.

So there is a real case to be made there, but, unfortunately, it does need to be made problem by problem. If the problem needs a team, then everybody rallies together and forms a team. If the problem doesn’t need a team, at least to this day, the disciplines tend to go back to their traditional ways of doing things.

Hinton: If you had to give advice to your successor regarding how to continue and grow the quality of research at the University of Pittsburgh, what advice would you give?

Maher: We keep going forward the same way we have always gone forward: You keep looking for opportunities. There is a key moment when new ones arise but you keep looking for opportunities. If you know what you are trying to accomplish, then, when opportunities arise, you can jump on them.

Hinton: How has the culture of research changed during your tenure?

Maher: Well, I do think that there is a lot more work going on that involves multiple departments or schools in the University. There is a lot more work going on that involves the undergraduates. Fifteen years ago, when I became provost, it was very unusual for undergraduates in the humanities to be involved in research, and it’s not that unusual now. That means that the humanities professors—even though their personal styles may be to research individually—have really rallied around and tried to involve the undergraduates in really nice ways.

Hinton: Where do you find individual freedom or creativity in scientific research as an undergraduate, when most available research is someone else’s—a graduate student’s or a professor’s—project?

Maher: That isn’t a question if you are in one of those groups. If you are in one of those groups, you can tell if a given person is contributing, and there’s lots of room for creativity. What to me would be the bigger problem is how to help students in the humanities who aren’t really getting the knack. First, how do you identify those students and then how do you help them? When someone is around a research group in the sciences all day, it’s easy to tailor the next couple of days’ assignments to help them so that they can gain a little more insight, get more involved with the group, and contribute more to the discussions.

Hinton: How can we make humanities research more group oriented?

Maher: It doesn’t have to be more group oriented at all. But the issue is how to assess whether a student is making progress and then how to help a student make more progress. I do think that when students are in a group—like one of the science groups—it’s a little easier to tell well how they are catching on to what’s going on and how well they are making progress and having ideas to advance the common cause. When they are off doing their own projects, it requires a different set of skills to figure out whether they are spinning their wheels.

Hinton: What kind of skills would those be?

Maher: I don’t know. That’s the personal characteristic of the successful humanities professor.

Hinton: In moving from a lab director position to the provost position, have you been given a different perspective on how good research should work?
Maher: I was always engaged at, at least, a discussion level with people in other fields. I’ve always been interested in other things that go on in the University. So, it wasn’t like some new world opening up. I’ve enjoyed having the opportunity to try to engage undergraduates in research throughout the University. In terms of other fields where I don’t have experience supervising student research, I’ve always felt that I could raise questions in discussion with professors in those fields and learn something about the challenges.

Hinton: Where do you see the humanities and the sciences headed?

Maher: I’d love to know the answer to that one. I would say that the physical sciences are moving in directions that are fascinating and, at the same time, it’s going to take a long time to know whether or not it’s working out. I would say, for instance, in pure physics, they are moving farther and farther from their empirical base. That may be necessary, but there is real danger of losing focus on what the basis for our understanding is. The more applied physical sciences are losing the cohesion they used to have by virtue of being forced off into smaller and smaller areas of focus as the government discourages what it now calls curiosity-based research. In each case, there is a struggle to maintain a common understanding of what physics is, what chemistry is. The biological sciences are where you really get into plural sciences. They don’t even consider themselves all one science, and that is a different viewpoint that has grown up during the last 50 years. There are interesting trends going on, but where they are going, I’d love to know.

Hinton: How married are the goals and culture of research to how it is funded?

Maher: That’s a whole other discussion right there, but there are two main things. You can do a lot of good, fundamental science while working on problems of societal interest. The money may change the conversation piece you pick to try to tie into your basic intellectual interest, but it doesn’t necessarily skew the intellectual interest if you don’t let it. On the other hand, a lot of people let it. Both trends are there.

Hinton: What question are you most interested in right now?

Maher: I am going to be going back to faculty and I need time to think about where I might be able to make contributions. My own interests have been in the role of randomness in nature, the apparent randomness that occurs in physical processes, and how that randomness arises from laws that are reasonably definite. That kind of issue has always fascinated me—how we can generate all this diversity in physical phenomena from such mundane, basic rules that govern things.

Hinton: Are there any other things I haven’t addressed that the community should know?

Maher: There is only one other issue I’d like to raise. This has to do with the typical undergraduate’s perception of the value of doing research while they are undergraduates. I would say that even if you enter college knowing that you never want to do research after you graduate, it is still worth doing it while you are an undergraduate because of the extra insight you will get into the way people solve problems. No matter what you are doing the rest of your life, you are going to be solving problems. If you have a little more sophisticated understanding of how the human mind comes to grips with specific problems, you are going to be a more sophisticated problem solver on the problems you choose as your work’s life. Too many of our students think that the fact that they are going straight into business and never into a lab means that they shouldn’t be troubled with research.

Erik Hinton (A&S ’10) is currently the Web development and design fellow at Talking Points Memo (www.talkingpointsmemo.com).

I currently am working on several research projects. I have long been interested in export patterns throughout the world, and have published several papers on the topic. Most recently, I decided to focus on China. In particular, over the past decade, Chinese exports have grown rapidly. The question I currently am seeking to answer is which countries have lost market share in the face of this export growth. The principal result of this work is that contrary to the popular opinion that Chinese markets gains have come at the expense of Korea and other developing Asian economies, my coauthor and I find that the two countries that have experienced the greatest share of losses are Japan and the United States.

A second interest of mine is the study of exchange rate behavior and whether or not exchange rates follow paths dictated by movements in price levels in different countries; this hypothesis is known as the theory of purchasing power parity (PPP). There is considerable empirical evidence that PPP holds for at least some exchange rates. I first was introduced to the idea as a graduate student, and I have revisited it many times over the course of my career. My current effort is to study more than 1,200 exchange rates among 50 countries between the years 1980 and 2005 in order to determine which economic factors are important in determining whether or not PPP might hold. In order to carry out this project, I needed to amass a huge amount of data. Fortunately, as I was starting on the project, UHC student Swan Uber (A&S ’09) offered his assistance, and he worked for a term as my undergraduate research assistant. I was so pleased by his efforts that when I assumed my position as interim dean, I decided to expand the number of undergraduate research positions supported by UHC. In the fall 2010 term, UHC began funding 50 new Honors Research Assistantship positions across the University.

In addition to the opportunity to work with faculty on their research, UHC also offers students several opportunities to engage in research projects of their own. Each summer, the Brackenridge Summer Research Fellowship program supports 40 students as they work with faculty mentors on projects across all disciplines in the arts and sciences as well as law, communication science, business, and engineering. Students involved in this work often choose topics that combine their interests in several (perhaps seemingly unrelated) disciplines. Please see the section of this newsletter devoted to the Brackenridge Fellowship (page 9) for comments from students and their faculty mentors on the role of research in undergraduate education. In addition, and most importantly, UHC exists as a college because of its ability to confer a special degree, the Bachelor of Philosophy (BPhil), which exemplifies a form of attainment that undergraduate research can effect. This is a unique degree that can be awarded in cooperation with any other undergraduate program on the University. The BPhil is available to qualified students who complete an approved program of study and who demonstrate a capacity for finished independent scholarship. Typically, the program of study is flexible and highly individualized; the requirement for independent scholarship entails research leading to the completion of a written thesis. The thesis must be presented publicly and defended before a board of faculty that includes an examiner from outside the University.

Research is a fundamental part of the fabric of life at any major university. However, few universities provide as many opportunities for undergraduates to participate in these endeavors as UHC does. I am proud of the central role that UHC plays in the process.
Brackenridge Fellowship (Continued from page 4 and 5)

Allen and Cannon, continued

4,000 years old and was excavated by archaeologists from Bryn Mawr College in the ’60s and ’70s. The production centers were responsible for creating items such as thread, cloth, metal tools, pottery, and jewelry. Throughout the history of this site, these centers did not stay in one place but rather changed locations. It is my theory that these changes of location were the result of transitions in both government and social structure. As the government of the area became stronger and the population larger, centers of production came closer together so that they could be better controlled by the governing authority. My research was identifying these changes of location and using them to clarify social transitions and the impetus for them.

Being able to conduct this research within the Brackenridge community was very beneficial. In midsummer, I presented the research I had completed to that point to an exceptionally diverse group of Brackenridge scholars. The challenge of presenting complex anthropological/archaeological theory to an audience without any background in the subject was an excellent test. To explain it clearly, I had to understand my work to a high degree. Furthermore, the questions asked at the conclusion of my talk enabled me to take on a nonspecialist’s point of view. This has since taken me in directions that are richer and more significant than I was able to go on my own.

Ayyash and Jacobson, continued

honesty and self-critical habits that you need to get to a piece of work that’s meaningful and also true. I’ve mentored more than 80 undergraduate researchers, some for as long as three and a half years, and for me it’s been a constant joy to see them grow and succeed. I love to see the students in my lab forming a social structure of their own and supporting each other in every aspect of their studies and their lives. Working in a research group takes them outside the age-sorted structure of our educational system and brings them together with older and more experienced coworkers, so students finally get the idea that laboratory science is a cooperative enterprise rarely done by individuals working alone.

Graduates Discuss Research Inside—and Outside—Their Major Disciplines

It will come as no surprise to anyone familiar with university life that undergraduate research experiences are beneficial. Advisors regularly tell students to take advantage of them to help get the most out of college. Among the more obvious benefits are the experiences of working on a major project for longer than a term and insight into how a particular field operates. What students often don’t realize, however, is that although there are obvious benefits to doing research in a field that the student plans to pursue later, there often are benefits that are just as substantial that come from doing research in something totally different from their later pursuit. To this end, the editors have collected stories from students who went through both kinds of research experiences, demonstrating what they got out of them and where it led them. What follows is a set of articles that demonstrate the advantage of just doing something.

Inside Discipline

As an undergraduate at the University of Pittsburgh, I served as a research assistant to Professor Daniel Berkowitz in the Department of Economics, traveled to Mongolia with the University Honors College’s Mongolia Field Studies Program, and completed an independent research project for the UHC Bachelor of Philosophy (BPhil) degree.

My experience as a research assistant was essentially an apprenticeship under an experienced economist. Professor Berkowitz taught me how to use the essential tools of applied economists and gave me some idea of what it is like to be an economics professor. Striking out on my own with the Mongolia Field Studies Program and the BPhil degree, however, was a much greater personal and intellectual challenge. For the Mongolia project, I started with a very vague notion that I wanted to know something about Mongolian business law, and after running around the country talking to businesspeople about contract disputes, I came home with a paper, a data set, and a lot of confidence. My BPhil degree started as an honors thesis in history and later became and economic history paper. The BPhil program required me to propose my research in writing, read a mountain of information, make a complex argument, take criticism from faculty, and present my research orally and in writing. When I applied to graduate school in my last year at Pitt, I enjoyed strong encouragement (and recommendation letters!) from my research advisors, and I was able to discuss my own work boldly and enthusiastically in my personal statement. Now, I am a first-year PhD student at Yale University, and I know that my undergraduate research experiences will give me confidence as I begin new projects.

Amanda Gregg (A&S ’09)
PhD candidate in economics,
Yale University Class of 2014

Researching and articulating an original thesis for my Bachelor of Philosophy degree from UHC was the most academically rewarding experience of my undergraduate education. Having associated closely with UHC throughout my four years, I welcomed the opportunity to produce a culminating research project that united various elements of my education. The topic of my thesis emerged from a purely chance encounter. As I sat in the departmental library fishing around for a good idea, I asked, joking, what I should write about as Dr. Mark Possanza walked past. Without breaking stride, he gave me my topic—Plato’s critique of writing in his Phaedrus—then closed his office door. The subject held considerable appeal for me, as I was studying both philosophy and Greek and as my literary interests would be engaged by the work. Without delay, I proposed the topic and began work.

I enjoyed the advisory assistance of Dr. Hans-Peter Stahl, Andrew W. Mellon Professor of Classics, in the development of my thesis. With his help, the project grew over a period of months into a work of serious scholarship. Free from the limits of typical undergraduate research in the humanities, I grew significantly as a result of the project. The need to sustain academic productivity in producing a
During my undergraduate career at Pitt, I was fortunate enough to research quantum computing with the renowned Dr. Jeremy Levy in the Department of Physics and Astronomy. The concept of quantum computation may not be understood outside the realm of solid-state physics, but the eventual creation of a quantum computer offers a wide array of technological capabilities that greatly affect the general public. My research focus was the creation of an instrument with the potential to execute measurements never performed before in the field of physics—wow! Several years later, I am still in awe of such a research endeavor.

Now I am a PhD student studying statistics—somewhat of a jump from physics. I might ask myself, “How does my past research experience benefit me in my current studies?” At first glance, it may seem as though my very specialized research in physics is somewhat irrelevant to studying statistics, but that is far from the case.

Participating in the Brackenridge Summer Research Fellowship really helped me to see the connections between seemingly unrelated academic fields. By presenting my project to a large audience of students from various backgrounds, and—perhaps more importantly—by immersing my mind in the other research projects and discussing them, I began to appreciate the interdisciplinary nature of research. The Brackenridge program opened my eyes to the possibility that physics was just one application of my true interest—the ability to contribute to virtually any field of research and to answer its questions in a reliable and quantifiable manner. I now realize that this is exactly what statistics allows me to do!

I also often ask myself, “How did I benefit from undergraduate research in a general sense?” Regardless of the success or failure of my research project or how it applies to statistics, I recognized the significance of such endeavors for their own sake. Through my experience, I developed a valuable intuition that applies across the board: how to formulate interesting questions in a manner such that they may be answered, develop methods to address these questions, communicate my ideas and collaborate with others both inside and outside my field, and express the significance of my results to the general public.

I am now able to see why research projects in general are so important. If you get used to thinking outside the box, figure out ways to combine existing knowledge into new and emergent ideas, and give your brain the hardest workout of all—discovering your limits and learning how to break through them.

Scott Rothenberger (A&S ’07)  
PhD candidate in statistics, University of Pittsburgh

During my junior and senior years, I worked with Katherine Wolfe (a fantastic mentor!) in the Department of Economics to try to understand what motivates open source software developers to create—without charge—such high-quality, highly utilized software, only to turn around and give away the source code. It’s akin to a baker painstakingly inventing an exceptional (and highly marketable) cake recipe and then publishing it online for anyone to copy. Except it’s thousands of bakers, with hundreds of recipes, and cakes so good that everyone wants one. Why would anyone trade their intellectual property for nothing?

My only goal in pursuing this question was to learn more about a topic that fascinated me. I had an itch, and I was scratching it. And precisely because my project had absolutely nothing to do with my future career plans, I didn’t have to worry about “looking good” or even finding meaningful results if there were none to be had. All I had to do was follow my interest. It set the tone for an exhilarating intellectual experience and an unparalleled sense of freedom. It stretched—and sometimes seriously sprained—some underused mental muscles.

Today, I am a medical student, and I am incredibly grateful for the opportunity to learn the art and science of human medicine. Nevertheless, I appreciate more than ever the intellectual latitude that my research provided. Did open source software help me in any way to memorize anatomy more efficiently? Not a chance. It did, however, instill a certain confidence that yes, I could jump in, even if I didn’t know how to swim. Just as importantly, having done research on an unrelated and unfamiliar topic allows me to appreciate that there are entire academic landscapes that I cannot even fathom. In my rare moments of introspection, I am quite amused to realize how doing economics research has made me more appreciative of the vastness—even if I can’t know or understand much of it—of what lies beneath the surface of that introductory art course, that famous battle highlighted on the History Channel, or that latest NASA photograph.

When I graduated in April 2009, I was an economics major and a premed student who studied computer software, only to turn around and give away the source code. I now realize that the intrinsic educational value of research, although typically in the background of this picture, is actually far more telling of the merits of the research process itself and far more universally applicable. In my case, conducting research for its own sake was an invaluable endeavor that enriched my undergraduate experience and indirectly aided me in my unrelated career pursuits.

Yvonne Saadi  
(A&S ’09)  
Law, Harvard Law School

Conducting research often connotes pursuit of a career in the field. Yet the intrinsic educational value of research, although typically in the background of this picture, is actually far more telling of the merits of the research process itself and far more universally applicable. In my case, conducting research for its own sake was an invaluable endeavor that enriched my undergraduate experience and indirectly aided me in my unrelated career pursuits.

While at the University of Pittsburgh, I completed an honors thesis and a Bachelor of Philosophy in psychology. My research focused on the effect of contingency-based health communications—specifically, whether the use of incentives (positive rewards) or disincentives (negative consequences) more effectively conditioned the uptake of target health behaviors. I also was interested in studying law and am in fact now pursuing a law degree with an emphasis on transactional or criminal law. Although these two paths are ostensibly unrelated, pursuing research during my undergraduate career was invaluable as a purely academic exercise.

Research for its own sake was beneficial on both practical and functional levels, both of which further had indirect implications for graduate school. As a practical matter, it allowed me to pursue my own lines of inquiry. Especially because I was prelaw, I knew college would be the last time to pursue purely self-indulgent research questions before entering a field more constrained by practice and precedent. My research gave me this opportunity to develop and implement my own ideas into an experimental design and gather data on my hypotheses. Now that I spend most of my time reading cases and drafting memos and briefs, I look back on my time as a student and a researcher glad that I have had the opportunities to do both.

Functionally, my research allowed me to develop skills that have served me both in and outside the research context. Formulating hypotheses and designing projects sharpened a sense of logic and intuition that has benefited me throughout my academic and professional endeavors and will assuredly continue to do so. Drafting and defending my theses trained me to convey ideas succinctly and effectively. In law school, these skills have been invaluable for both legal writing and class participation. Beyond academia, these skills have allowed me to communicate more effectively with prospective employers and future colleagues alike.

In general, the merits of conducting research as a purely academic exercise may be overlooked, but they are universal and pervasive. The extent to which I benefited from my own research as a student, irrespective of my own career goals, is inestimable. Looking back on my undergraduate experience, creating, implementing, and defending my research projects are some of my fondest memories and the sources of some of my most valuable skills in law school.

Rhett Jenkins (A&S ’03, ’07G)  
PhD candidate in Classics, University of Pittsburgh

Rhett Jenkins (A&S ’03, ’07G)  
PhD candidate in Classics, University of Pittsburgh

Rhett Jenkins (A&S ’03, ’07G)  
PhD candidate in Classics, University of Pittsburgh
It sadly will come as no surprise to most readers that G. Alec Stewart, dean of the University of Pittsburgh University Honors College since its inception, tragically passed away last spring. He died on April 7, 2010, at UPMC Montefiore in Oakland, at the age of 69.

Any description of Doc’s achievements is bound to fall short, despite his outstanding record of visible achievements, from his students’ winning record numbers of national and international awards to the acquisition of more than 4,000 acres of land in eastern Wyoming containing rich dinosaur fossil beds. In addition to his regular duties as dean, he taught honors physics five days a week every fall and spring. (He never saw his teaching as something less important than his administrative responsibilities.) Doc’s greatest achievement, though, had always been the tone that he set for the University Honors College, a “spirit and style” that made our office a magical place for students and staff alike. The atmosphere he created on the 35th and 36th floors of the Cathedral of Learning was not directed toward acquiring visible marks of achievement. (“Our bread is not buttered in body count,” he always used to say.) Instead, he created an atmosphere where people were inspired to do amazing things.

After his passing, the staff of the University Honors College kept moving, although we were in deep mourning and severe shock. Some asked if UHC could ever be the same without Doc. However, we quickly learned that we still knew what to do, that Doc’s lessons had worked on us as well: Focus on inspiring students to be their best, and the rest falls into place. The greatest tribute we can give to him is not listing his achievements or describing the development of UHC under his great leadership. The greatest tribute is maintaining the spirit and style that make these things happen. In this way, Doc is still with us.

The University of Pittsburgh Honors College lost a friend in Abigail (Gail) McGuire, who died on Monday, September 21, 2009, in UPMC Montefiore in Oakland. She was 69.

Many students and University staff members got to know McGuire through her work on University Honors College publications and events. However, she came to the University in 1991 as assistant director of development for the School of Arts and Sciences, assigned to managing the school’s annual fund. She was promoted to a major gifts officer in 2001, and her responsibilities were extended to include individual major gifts to the University Honors College. Before coming to Pitt, McGuire worked with the Carnegie Library of Pittsburgh, UPMC Shadyside, and Carnegie Mellon University. She retired in 2005 but became active in publicizing UHC activities at that time. One could often find her at the conference table in the main office, working away on her laptop computer.

Among the projects that were under McGuire’s gentle guidance were the previous editions of this newsletter. The current editors wish to express both gratitude for her fine example as well as hope that we can continue to produce a work of comparable richness.

It was a gift to work with her for the years that she spent with us. She will be missed as an integral part of the University Honors College.