The Computer-Based Honors Program

Silver Anniversary

1968–1993
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The Computer-Based Honors Program: Leader in Learning

The students who graduate each year from the Computer-Based Honors Program are prepared to become leaders in the application of computer techniques to the many fields of human knowledge. For twenty-five years, this has been our goal. It has also been our greatest reward, more gratifying even than the national attention, praise, and awards the Computer-Based Honors Program has received over the years.

Our history begins with the University of Alabama's establishment of its first computer center, in 1961. In the early days the center worked to encourage faculty and students to rely more on computer technology in their research and instruction. Bright, motivated undergraduates were employed to help staff the center, they received accelerated training in computer techniques and were then assigned to assist University faculty and staff with new and ongoing research projects. These students' greatest contribution, however, was their role of actually teaching the researchers about the computer's capabilities. The experience was a great success. The National Science Foundation, learning of our project, granted funding to expand it, and in 1968 the Computer-Based Honors Program (CBHP) was officially launched. Its formal objective from that time has been to train select undergraduate students—a small group with proven academic ability—in the use of computer techniques, emphasizing creative approaches to applying that training to a subject in which the student has an interest. The initial, intensive computer training is part of the CBHP freshman curriculum. It is taught by scholars who have extensive experience as well as proven expertise with The University of Alabama's computing equipment. Once skilled in computer use, CBHP members go to work with researchers in the University, seeking to expand or refine research by bringing broader knowledge of computer techniques to bear, or by developing new techniques. This work is performed under a contract filed at the start of each semester; the student submits a progress report at mid-term and at semester's end. In the course of the research activity, CBHP students fine-tune their abilities to use the computer to help generate knowledge.

The CBHP is headed by a director (employed half-time), who is responsible for admitting students to the program and who supervises CBHP courses and seminars. The director also reviews faculty members' requests to work with CBHP students on their research or instructional projects, matching these requests with students' interests. The CBHP director has by tradition been chosen from our computer center directors or from the pool of CBHP graduates. (Each CBHP director has held the Ph.D. degree.) Other duties the director assumes are planning, recruiting top students, preparing progress reports, and working with faculty toward the publication of research results.

In addition to the project-based learning which is the program's culmination, CBHP students enjoy an outstanding curriculum. The first-year course provides wide-ranging exposure to the history of computers, focusing on the rapid growth in their application to various fields of knowledge. Students also gain thorough
grounding in the main computer languages: Fortran, assembler, Basic, and ECL. As time permits they are also introduced to other languages, such as COBOL and PL1. The curriculum equips them with very specific skills, but the underlying strategy is to teach CBHP members how to teach themselves what they must learn to solve a particular problem using the computer.

CBHP students beyond the first year enroll in seminars that include many opportunities to apply skills learned in the introductory class. Seminar students must complete computer-based projects of two types: research in a particular academic field, and experimentation with the computer as a teaching tool. Under faculty supervision, each student carries out duties pertaining to planning the project, writing or implementing computer programs for the research, and interpreting the results.

The recipients of some of The University of Alabama's highest honors regularly include members of the Computer-Based Honors Program. In addition, our students are selected for prestigious opportunities at institutions around the U.S. and beyond. For example, CBHP members in recent years have won the following:
- Truman Fellowship
- Von Karman Institute (Belgium) Internship
- National Science Foundation Fellowship (graduate study at Stanford University)
- National Science Foundation Fellowship (graduate study at Carnegie Mellon University)
- National Science Foundation Fellowship (graduate study at the California Institute of Technology)
- Chancellor's Fellowship of the University of North Carolina–Chapel Hill School of Law
Today's CBHP Students

Nothing tells the Computer-Based Honors Program story better than our students. The following high-achieving young people are a sample of our special silver anniversary class.

Jason Watts
Boaz, Alabama
Major: Secondary Mathematics Education
ACT: 34 GPA: 3.84
Project: “Teacher Role and School Organization in Urban High Schools of Choice”

Patricia Greene
Northport, Alabama
Major: Applied Mathematics
ACT: 32 GPA: 3.90
Project: “Application of Random Numbers”

Michael Walters
Montgomery, Alabama
Major: Accounting
ACT: 33 GPA: 3.97
Project: “Bankruptcy Forecasting Using Multivariate Prediction Models”

Anna Bryan
Kentwood, Louisiana
New College Depth Study:
Spanish Language and Culture
ACT: 30 GPA: 3.90
Project: “Effects of Economic Interdependence on the Likelihood of War, 1946–1986”
H. Pettus Randall, Jr., Scholar

Mark Scott
Boaz, Alabama
Major: Industrial Engineering
ACT: 34 GPA: 3.88
Project: “Optimization of a Sports Simulation”
Bell Scholar

Claire Cates
Fort Deposit, Alabama
Major: Mathematics
ACT: 33 GPA: 4.00
Project: “Theoretical Applications of Probability Simulations”
Bell Scholar
In Memoriam:
Dr. Charles L. Seebeck

I was reading Saint Exupery's *The Little Prince* to our children last week, and a story from that novel reminded me so much of Dr. Seebeck that I am compelled to share it with you. The storyteller, you may recall, was a pilot who was downed in the Sahara. On his second day in the desert, he was amazed to be awakened at sunrise by an odd little voice, saying, "If you please, draw me a sheep." The pilot jumped up and saw a most extraordinary small person standing there and examining him with great seriousness. The person repeated his command: "If you please, draw me a sheep."

Astonished, the pilot complied. But the person, the Little Prince, said, "No. This sheep is already very sickly. Make me another one."

The pilot tried again, unsuccessfully. And again. The Little Prince remained unsatisfied. Finally, the pilot tossed off a drawing of a box with holes in it. "This is only his box; the sheep you asked for is inside," he explained.

The pilot was surprised to see a light break over the face of the Little Prince. "That is exactly the way I wanted it!"

The story reminds me of Dr. Seebeck for three reasons. The most obvious, to those of you who knew him well, is that he was, as trite as it may sound, a genuine prince of a man. In his own kingdom, the classroom, he cared very much about each of his students as an individual. He wanted, more than anything else, for each of us to become the best person we could, and he was willing to work as hard as necessary to make that opportunity available to us.

Dr. Charles L. Seebeck was born July 19, 1908, in Charleston, South Carolina. He earned the A.B. degree in mathematics from the College of Charleston, the M.A. degree from Harvard University, and the Ph.D. degree from the University of North Carolina-Chapel Hill. Dr. Seebeck joined the faculty of The University of Alabama in 1939. When the first computer center was established at the Capstone, he served as its director. When the Computer-Based Honors Program was founded in 1968, he also served as its director, having been the driving force behind organizing and training the student assistants who were the forerunners of today's CBHP. Dr. Seebeck died in August 1982, and the University's contemporary computer center is named in his memory.
That is why he founded the Computer-Based Honors Program. Dr. Seebeck had established a superior reputation as a scholar. Even with such laurels, an incredible effort was required to create the Computer-Based Honors Program. But observing brilliant students like Henry Copeland as they thrived in the environment of the University's "wonderful new machine"—the computer—convincing him that talented students could benefit from challenging themselves to learn to use that technology in their major fields.

Let me also point out that Dr. Seebeck was the rare (at that time) professor who lent as much encouragement to women students as to men students where the pursuit of careers in the hard sciences was concerned.

The second reason that the story from The Little Prince reminds me of Dr. Seebeck is that, though what he showed us, the computer, was just a "box," he taught us that inside it was something alive and exciting, which, if we worked hard enough, we could release. He was actually thrilled to be able to bring the computer to life for us and to share with us the wonder of that experience, and that prompted him to advocate increasing students' access to the machine. On other campuses, students and faculty alike were amazed that college freshmen, which most CBHP members are when they join, had the run of the computer room. Dr. Seebeck's great delight was sharing the "box" and its capabilities with his colleagues and his students.

But the most important reason that the story reminds me so much of Dr. Seebeck is that he took students who had beaten the learning game (or thought they had, at any rate) and made us look at education and life in an entirely different way. Few of his CBHP students had ever recorded even a single "B" in high school classes; it had been difficult to find a true intellectual challenge for them. So Dr. Seebeck handed them the impossible and instructed them to imagine it possible. Imagination was his most priceless gift to these accomplished students.

George Danzig, professor of physics at Stanford University, recounts an episode that may best explain what Dr. Seebeck did for us. "I was a senior at Stanford during the Depression," Dr. Danzig said. "We knew that when the class graduated, we'd all be joining unemployment lines. There was a slim chance that the top man in class might get a teaching job, but that was about it. I wasn't at the head of my class, but I hoped that if I were able to score a perfect paper on the final exam, I might be given a job opportunity.

"I studied so hard for that exam, I ended up making it to class late. When I arrived, the others were already hard at work. I was embarrassed and just picked up my paper and slunk to my desk. I sat down and worked the eight problems on the test paper and then started in on the two that were written up on the board. Try as I might, I couldn't solve either one of them. I was devastated. Of the ten problems, I had missed two for sure.

"But just as I was about to hand in the paper, I took a chance and asked the professor if I might have a couple of days to work on the two I had missed. I was surprised when he agreed, and I rushed home and plunged into those equations with a vengeance. I spent hours and hours and finally solved one of them. I never could get the other. And when I turned in that paper, I knew I had lost all chance of a job. That was the blackest day of my life.

"The next morning I was awakened by a pounding on the door. It was my professor, all dressed up and very excited. 'George! George!' he kept shouting. 'You've made mathematics history!' Well, I didn't know what he was talking about. And then he explained. I had come to class late and had missed his opening remarks. He had been encouraging the class to keep trying, not to give up if they found some of the problems difficult. 'Don't put yourself down,' he had said. 'Remember the classic, unsolvable problems on the blackboard.' When I came in, I didn't know they were unsolvable. I thought they were part of my exam, and I was determined that I could work them properly.

"And I solved one! It was published in the International Journal of Higher Mathematics, and my professor gave me a job as his assistant. I've been at Stanford for 43 years now."

In the second semester of my freshman year, Dr. Seebeck assigned a problem that was impossible—one that had, at least, no known solution. He did not tell us that he did not know whether it could be solved, and a few of us completed an answer. We drew beautiful boxes in response to Dr. Seebeck's command "Draw me a sheep." A definitive solution we may not have provided, but because he had challenged us to do the impossible, we drew much lovelier sheep than we could have done otherwise.

Dr. Seebeck genuinely cared about us, he made the computer a living thing for us, and he taught us to use imagination. He changed forever the way we looked at our world and the people we were to become.
Greetings on the Occasion Of the Silver Anniversary

by Lowell D. Kispert
Professor of Chemistry
CBHP Project Director since 1968

It hardly seems that 25 years could have passed since the first Computer-Based Honor Program students worked so diligently to set up state-of-the-art computer programs for a beginning assistant professor and his new research program. Subsequent students have learned well how to use many new computer programs. The CBHP experience has provided the basis of numerous master's theses and doctoral dissertations. It has produced graduates who are leaders in organizations ranging from collegiate chemistry departments to corporations.

In the early days, students like Catherine Engleman struggled for an entire academic year with Job Control Language, insufficient core memory, and slow-paced disc-access when converting programs. Little time was available for teaching a new student how to begin. In the CBHP today, small desktop computers far exceed the capacities of 1969's machines, making possible the accomplishment of much more work in much less time. This semester, for instance, student Charles Harless was able to complete the software, B-testing, and preparation of the instruction booklet that enable five computers with incompatible operating systems and I/O formats to display and output graphical information on the same laser printer, plotter, and screen. And his program can be easily operated by a novice. The students of the Computer-Based Honors Program, including Charles Harless, through their work make a valuable contribution to the education of future scientists and industry leaders, as well as to human knowledge. This contribution is recognized at high levels, as reflected in these greetings sent to the Computer-Based Honors Program on the occasion of its silver anniversary. Let us all share with these writers the confidence that the next 25 years will see just as many enthusiastic and ambitious students make their mark through the Computer-Based Honors Programs as have done so in our first quarter-century.
December 7, 1992

As Governor, I am delighted to extend greetings to you on the occasion of the 25th Anniversary of the Computer-Based Honors Program at the University of Alabama. As I am sure you are aware, this program has been cited by the National Institute of Education as one of the six most intriguing honors programs in the nation. The computer industry has brought many advancements to society. I commend both professionals and students for your continuing efforts to enhance your profession and its contributions to our world.

Alabama's diversified, progressive business and education environment provides the tools and resources that encourage development and application of computer science.

I encourage you to use your participation in the Computer-Based Honors Program as an opportunity to experience the rich diversity that the course offers.

Sincerely, Guy Hunt
Governor of the State of Alabama

January 10, 1993

My first semester here (at Harvard Graduate School of Business) was one of the most fascinating and challenging experiences of my life. The rigors of the program sharpened my focus and intellect while my classmates have helped me broaden my mind. While my classmates are fascinating individuals, I have decided that the people I sat with in CBHP seminars were probably more intelligent in absolute terms than my current classmates. The Computer-Based Honors Program was such an integral part of my college life and gave me so many immense opportunities. The big difference between CBHP and now is the depth of experiences my current classmates have had.

Congratulations on the CBHP's 25th anniversary!

Sincerely, Winston H. Gillum, Jr.

Education is not only what we know, but how we came to know it. The mastery of communication and information skills is essential to a quality education. Mastery of the computer is to the twentieth century what rhetoric was to the nineteenth century—the means by which we extend knowledge. Indeed, computer-mediated knowledge can have... characteristics of elegance and style as students in our Computer-Based Honors Program have come to know.

It comes as no surprise in this twenty-fifth year of its existence that two students in the CBHP have been named finalists in the Rhodes Scholarship competition. But it is also important to me that the things we learn through CBHP have wider application to the campus. In that respect, the CBHP has become a laboratory for instructional development, further enriching the experience of all our students.

My hat is off to Dr. Cathy Randall and the many talented students who have participated in this outstanding program. Twenty-five years is a lifetime in informational technology. By keeping the Computer-Based Honors Program at the leading edge, Dr. Randall and her students have brought great credit to this University.

With all best wishes for the next twenty-five years, I remain a dedicated follower of your progress.

Sincerely, Roger Sowers
President of the University of Alabama

December 8, 1992

On behalf of the Tuscaloosa City Council and the citizens of this community, I want to extend a warm welcome to each of you as you celebrate the 25th Anniversary of the Computer-Based Honors Program here at the University of Alabama. We are honored to host this exciting event and are pleased to welcome you.

Tuscaloosa is a wonderful city and if you have the opportunity, I hope you will take time to visit some of our many historical attractions and museums.

Once again, welcome back to the City of Tuscaloosa.

Sincerely, Aten P. DuPont
Mayor of the City of Tuscaloosa
December 1, 1992

Congratulations to all of you for your first twenty-five years of digitalized achievement. Having benefited for many years from Cathy (Randall's) knowledge, wisdom, and dedication in the National Collegiate Honors Council, I know you have the best leader imaginable, and news of your wonderful program regularly makes the hard drive up I-59 from Tuscaloosa to Birmingham. I wish you many megabytes of success in the future.

Ada Long
Director of the UAB Honors Program
President-Elect, National Collegiate Honors Council

It is a pleasure to send greetings along with cheers and hearty congratulations on this occasion celebrating the twenty-fifth anniversary of the Computer-Based Honors Program at the University.

My colleagues throughout the Southern Regional Honors Council, along with the students and faculty of the University Honors Program at Troy State University, join me in recognizing the contributions this innovative and unique program has made to education in the South and the state of Alabama in particular.

The success of the CBHP is the result, in large part, of . . . ability to see a need and act on it as well as to develop support and become the catalyst for outstanding student-faculty interaction.

We thank you for what you have done for all of us and for the leadership demonstrated by your success. As you move into the next twenty-five years and into the twenty-first century, may the CBHP students and faculty continue to set the pace for all of us.

With sincere best wishes,
Emma Coburn Norris, Ph.D.
Director of TSU Honors
President of the Southern Regional Honors Council
1992–93 CBHP Project Directors

Dr. Gary April, Department of Chemical Engineering
Dr. John Ballard, Department of Sociology
Mr. David Boone, Department of Management Science and Statistics
Dr. Milla Boschung, Department of Consumer Sciences
Dr. David Brown, Department of Computer Science
Dr. Beth Butch, Program in Curriculum and Instruction
Dr. David Cockrell, Department of English
Dr. James Dudgeon, Department of Electrical Engineering
Mr. Darren Evans-Young, Seebeck Computer Center
Dr. Brian Gray, Department of Management Science and Statistics
Dr. Billy Helms, Department of Economics, Finance, and Legal Studies
Dr. Phillip Johnson, Department of Mineral Engineering
Dr. William Keel, Department of Physics and Astronomy
Dr. Lowell Kispert, Department of Chemistry
Dr. Cecelia Laurie, Department of Mathematics
Dr. James Ligon, Department of Economics, Finance, and Legal Studies
Dr. David Miller, Department of Management Science and Statistics
Mr. Karl Okamoto, School of Law
Dr. John Onew, Department of Political Science
Dr. Harry Price, School of Music
Mr. Kenneth Randall, School of Law
Dr. Rod Riley, Seebeck Computer Center
Dr. Michael Roberts, Culverhouse School of Accountancy
Dr. Jerome Rosenberg, Department of Psychology
Dr. Shane Sharpe, Department of Management Science and Statistics
Dr. Robert Sigler, Department of Criminal Justice
Dr. Harold Stern, Department of Electrical Engineering
Dr. Douglas Stewart, Department of Industrial Engineering
Dr. Jim Stovall, College of Communication
Dr. Min Sun, Department of Mathematics
Dr. Charles Warren, Department of Mechanical Engineering
Mr. Richard Weaver, Office of Cooperative Education
Dr. Kevin Whitaker, Department of Aerospace Engineering
Dr. Keith Woodbury, Department of Mechanical Engineering

CBHP Staff

It is a pleasure to welcome you to the Silver Anniversary celebration of the Computer-Based Honors Program. One of the purposes of New College is to provide innovations in education and “export” them, but we were delighted to make an exception and “import” the Computer-Based Honors Program at the retirement of the founder, Dr. Charles L. Seebeck. Dr. Seebeck’s vision that computers would pervade all disciplines impelled him to seek a “home” for the Computer-Based Honors Program that was committed to interdisciplinary learning.

The Computer-Based Honors Program has flourished in New College. Having been cited by the National Institution of Education as one of America’s most intriguing honors programs, it represents the best in interdisciplinary education for honors students.

Welcome!

Sincerely,
Dr. Bernard J. Sloan, Dean
New College

Cathy Randall
Director

Darren Evans-Young
Freshman Instructor

Jane Nix
Secretary
by Dr. Rod Riley, Associate Director of the UA Seebeck Computer Center

From time to time I travel for the purpose of telling colleagues about ongoing projects at the University of Alabama. One point I always like to make is that I do not want The University of Alabama to be the best.

That's right. It's not a misprint. I do not want us to be the best.

You see, to be the best you only have to be a little better than the rest, and this implies a limit. Why should the students and staff at Alabama place a limit on their vision? I would rather that we constantly strive to be all we can possibly be—and then push a little more, with no ceiling or limit in mind.

This is what I see the Computer-Based Honors Program doing for students. Members of the program are challenged in a way that teaches them to have vision without limits. This is what makes all the difference in life.