

## QEP | Creating Scientists

### Learning by Connecting, Doing, and Making

## FREQUENTLY ASKED QUESTIONS

**WHAT IS QEP?** “QEP” stands for Quality Enhancement Plan and is a crucial component of the University’s regular reaffirmation (reaccreditation) process through SACSCOC (Southern Association of Colleges and Schools Commission on Colleges).

QEP is a set of new initiatives that the University of North Carolina at Chapel Hill seeks to implement over a five-year period (beginning in FY 2016–17) to address a well-defined and focused topic/issue that (1) makes a major, measurable improvement of student learning at the University; (2) is aligned with and evolves from the University’s mission, strategic priorities, and planning/evaluation efforts; and (3) involves broad-based campus participation.

**WHAT IS THE FOCUS OF THE QEP?** The current QEP is designed to improve learning in the sciences (with sciences being broadly defined, including disciplines traditionally associated with the social sciences).

**WHY THE FOCUS ON SCIENCES?** The Office of the Provost, in consultation with the Deans Council, chose this topic based on data showing increased interest by Carolina students in declaring science as a major, as well as areas for improved pedagogy and student access to specific opportunities.

**WHAT WAS THE PLANNING AND EVALUATION PROCESS?** Several efforts informed the QEP choice, including the University’s 2011 Academic Plan and 2010 Undergraduate Retention Study, the Board of Trustees’ 2013 21st Century Vision Committees, the UNC System’s strategic plan, and the College of Arts & Sciences’ 2013 Task Force on Large Lecture Courses.

**WHAT ABOUT THE ARTS, HUMANITIES, AND SOCIAL SCIENCES?** The linkages between the humanities, the arts, and the sciences are not always obvious to students. The QEP will leverage the excellence Carolina has in the

humanities and arts to integrate them into the QEP to improve science education. This may take many forms, such as integrating art and science in first-year seminars; offering more hands-on experience in courses, labs and research opportunities; and bringing scientists and artists together to brainstorm and build things at campus makerspaces.

**WHAT ARE THE OVERARCHING GOALS?** “Creating Scientists: Learning by Connecting, Doing, and Making” promotes a mindset focused on experiential learning, through its use of many action verbs.

“**Connecting**” refers to our goal to be more explicit in bringing ideas and skills from the arts and humanities to our developing scientists. For example, life-saving vaccines produced by scientists are useless if members of society fear their use. Bringing scientific solutions to a community requires a humanistic lens combined with effective collaboration and communication skills.

“**Doing**” emphasizes that students will go beyond reading about the process of science; they will experience the messy, complicated, uncertain, and rewarding process themselves.

“**Making**” refers to the synthesis of novel ideas and emphasizes how the scientific process often leads to tangible objects, such as the creation of prosthetic hands.

In sum, our “Creating Scientists” QEP aims to:

- connect the arts and humanities with science courses to provide critical thinking skills and an understanding of the myriad ways in which science and culture are intertwined.
- increase collaborative experiences that demonstrate the nonlinear process of science through research so that students understand the importance of collaboration, discovery, and iteration in science.
- highlight the novel ideas and objects that arise through research so that students can produce innovative, high-quality work that they present to other scholars.

There has been a 60% increase in intended or declared majors in the sciences since 2004.

# KEY ELEMENTS OF THE CAROLINA QEP

## Integrated Curricula

- Provide opportunities for faculty to develop co-taught classes that integrate the arts and humanities with the sciences, with a particular emphasis on First Year Seminars.
- Institute a University Lecture in conjunction with the Summer Reading Program to highlight interdisciplinary connections.
- Provide funds to student groups for interdisciplinary interactions.

## Course-Based Undergraduate Research Experiences (CURE)

- Redesign course-based laboratory experiences in chemistry and biology to include more inquiry and undergraduate research experiences, especially to benefit underrepresented minorities, first-generation students, and students with little research experience.
- Provide opportunities for faculty to develop CUREs in other natural science and social science units.

## Makerspaces

- Support the integration of making into new and existing courses via faculty course development grants, faculty learning communities, teaching awards, and training for faculty and teaching assistants.
- Establish one-credit skills courses that students can use to demonstrate deep knowledge of specific techniques.
- Support campus-wide maker events and expand BeAM into the residence halls.
- Establish workshops that train students in the maker skills needed to launch them directly into research groups.

## Research Exposure Opportunities

- Increase infrastructure to support undergraduate research, including coordination of summer programs and the addition of more departmental faculty liaisons to the Office of Undergraduate Research.
- Increase departmental courses that support research skills related to writing, analyzing scientific literature, and presenting to peers and non-science audiences.
- Develop mentored team research projects for one-credit courses.
- Create University Research Week to shine a spotlight on the value of research in all disciplines.

Visit [qep.unc.edu](http://qep.unc.edu) or contact QEP Director Dr. Kelly Hogan ([leek@email.unc.edu](mailto:leek@email.unc.edu)) or QEP Implementation Committee Co-Chairs Dr. Greg Copenhaver ([gcopenhaver@bio.unc.edu](mailto:gcopenhaver@bio.unc.edu)) or Dr. Adam Persky ([apersky@unc.edu](mailto:apersky@unc.edu)) to learn more.



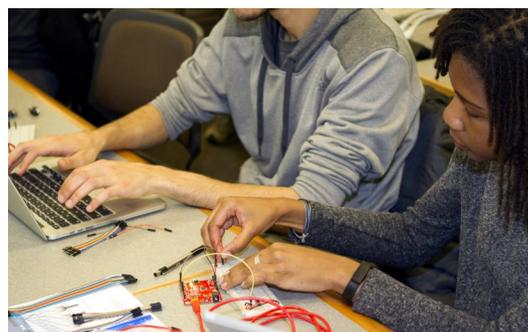
*In Seafood Forensics, a pilot CURE class, students quantify seafood mislabeling using DNA barcoding technology.*



*Students collaborate in a First Year Seminar, Math, Art, and the Human Experience.*



*The 36-meter wave tank in Chapman Hall allows researchers and students to study fluid dynamics, turbulence and other phenomena.*



*In the new Murray Hall makerspace, one of three campus makerspaces in the BeAM network, students participate in an electronics workshop.*



THE UNIVERSITY  
of NORTH CAROLINA  
at CHAPEL HILL