

Regents' Professor: Douglas Montgomery

Faculty member makes mark in field of industrial engineering

Editor's note: This is the first in a weekly series of articles that highlight the recent President's Professors and Regents' Professors at ASU.

Make statistics your starting point, and it can take you almost anywhere.

That's what ASU professor Douglas Montgomery has discovered in almost four decades as an industrial engineering teacher, researcher and consultant.

Montgomery, a faculty member of the university's Ira A. Fulton School of Engineering, has seen his work in industrial statistics used in areas varying from aerospace, transportation, hydrology, materials development and product design to professional sports and the winery business.

His expertise has taken him as a lecturer and instructor throughout much of the Americas, Europe, the Far East and parts of Africa.

Most recently, his achievements in the field have led Montgomery to be selected as one of the ASU Regents' Professors. The appointment, one of the highest the university bestows on faculty, honors achievements in scholarship, research, creative endeavors and public service that have earned national or international distinction.

"Statistics is really a valuable part of solving many of the problems we face in engineering and all the physical sciences in general," says Montgomery, who has been at ASU since 1988.

His research has involved seeking ways to design more effective experiments, improve quality-control and testing methods and apply statistical modeling to optimizing manufacturing, production and distribution systems.

It has been employed in an array of industries, including electronics and semiconductors, biotechnology and medical devices, and consumer products.

His work has drawn the sponsorship of the National Science Foundation, the Army and the Office of Naval Research, as well as private industry. Montgomery's consulting clients have included such major companies as Intel, Procter and Gamble, Pfizer, Motorola, Dial Corp., IBM, Boeing and Dow Chemical Co.

He has adapted his specialty to things outside the traditional scope of industrial engineering research.

Montgomery is a member United States Golf Association's Technical Advisory Board. His testing methodologies have been used to help the association evaluate prototypes for new golf clubs and golf balls to see if they meet standards and conform to the stipulations adopted for professional competition.

An advanced knowledge of materials, manufacturing processes, aerodynamics and product design is necessary to comprehensively analyze the equipment, he said.

Montgomery also has delved into aspects of chemical engineering in a project to develop an efficient wine-making process for an Oregon winery.

The diverse ventures to which he has applied his expertise have kept him intrigued by his chosen field. But the most essential energizing factor for Montgomery is teaching.

"I still see teaching as my main job," he says. "It's the way you keep yourself thinking. Responding to all the questions students come up with and having to communicate your ideas to students is always challenging."

Montgomery teaches graduate-level and doctoral-level courses he has developed on the use of statistics in engineering, including statistical and empirical model building, and strategies for conducting engineering experiments.

He has authored 10 textbooks that have appeared in 30 English editions and many foreign languages.

Montgomery has supervised 47 doctoral dissertations and more than 40 graduate theses projects and statistics projects.

"He is a tremendous scholar," says Gary Hogg, the former Industrial Engineering Department chair, who nominated Montgomery for the Regents appointment. "Virtually everyone places him in the top three in his field. His textbooks dominate the field. About 60 percent of the people in the world taking a course (in industrial statistics) are studying from one of his books."

Hogg, the associate dean for facilities management for the Fulton School of Engineering, also praised Montgomery's teaching skills.

"Doug loves to teach and is the consummate classroom teacher," he says. "I've never seen better student evaluations, and he effectively handles classes of a hundred students. He's such a strong researcher and has so much real-world experience that he can bring into his classes."

Montgomery, who last year won an ASU Outstanding Graduate Mentor award, has earned almost every major honor in his engineering specialty, including the Shewhart Medal, which is "like the Noble Prize" for quality engineering and industrial statistics, Hogg says, adding: "From my perspective, he's the epitome of what a Regents Professor is supposed to be."

Montgomery says he doesn't consider his ASU Regents' Professor appointment as a strictly individual recognition.

"I look at this as more of a team award to be shared by the Department of Industrial Engineering," he says. "What I've done in my career has been achieved through collaborations with a lot of other faculty members and colleagues."

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Regents' and President's Professors

Douglas Montgomery is one of six ASU faculty members awarded Regents Professor appointments for 2006. Regents' Professors are marked by excellence in teaching, exceptional achievements in research or other creative activities, and national and international distinction in their fields. Regents' Professors, named by the Arizona Board of Regents, serve as advisers to the university president and take on a broader role as consultants and teachers throughout the university.

The other members of this year's Regents' Professor class are: **Cordelia Candelaria**, Chicana and Chicano Studies; Carlos Castillo-Chavez, Mathematics and Statistics Department; George Poste, Biodesign Institute and School of Life Sciences; **Edward Prescott**, Economics Department, Rogier Windhorst, Physics and Astronomy Department.

Six outstanding faculty named ASU Regents' Professors

ASU is also honoring for the first time a class of President's Professors. This new prestigious award, is designed to reward enthusiasm and innovation in teaching, the ability to inspire original and creative work by students, mastery of subject matter and scholarly contributions.

Inaugural awardees are **Randall Cervený**, professor of geography; Alice Christie, associate professor of technology and education; Ian Gould, professor of chemistry and biochemistry; and the late Paul Rothstein, associate professor of industrial design.

ASU selects inaugural President's Professors

The Regents' and President's Professors will all be inducted in a ceremony April 27.