

CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

# Current



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# A Passion for Physics

Researcher, scientist, global traveler, and teacher – Geoff Dougherty has a way of making a complicated subject understandable to students

Geoff Dougherty calms frazzled nerves, clears muddy waters, and disentangles the complexities of physics that would boggle the minds of most. Never mind if students are trying to fathom thermodynamics, computed tomography, the matrix of voxels, or sorting out simultaneous equations. The CSUCI professor of physics will navigate them through the toughest of topics.

“I was totally intimidated by an introductory physics class which was taught by another professor,” says Julie Butler, a senior biology major. “I got a 64% on my first exam. I was really worried but Dr. Dougherty offered to help, saying that he could maybe offer some fresh perspectives. He spent about three hours a week tutoring me, taking a lot of his personal time. On my next test I got a 94%.”

Such teaching stories surround Dougherty, whose students applaud his easy way of making complex concepts in physics come to life in their own minds.

“As a teacher, I’m a facilitator, encouraging students to think conceptually, to see the big picture in everything,” says Dougherty. “I want to give students the confidence to be able to approach new situations, using a general problem-solving strategy, rather than thinking they have to remember masses of details to make progress.”




Dougherty was among the original professors who came to the University in 2002. He arrived with a suitcase full of credentials, having worked at the Swiss Federal Institute of Technology, the Science University of Malaysia, a software company in Singapore, Monash University in Melbourne, Australia, and Kuwait University, to name a few.

His life has been all about his love for a discipline that can ponder the universe and the workings of the human body—and, at the same time, create better products such as diagnostic imaging systems for hospitals, computers, and even CD and DVD players.

In his career, he’s conducted research on carcinogenic drugs, created new diagnostic tests for intercalating drugs, devised a new technique for detecting and measuring toxic heavy-metal contaminants in foodstuffs, and built a radiologic sciences department at a university from ground zero.

Dougherty brings all of his academic background, research, and global experiences to his students at CSUCI. “He has a superb ability to answer questions presented yet he is able to make you, as the student, think about finding a more in-depth answer to questions,” says Dolly Thornton, a senior who is pursuing a math major and an applied physics minor. “He brings life to discussions and he has such a passion for his work and teaching.”

In a short time, Dougherty has developed a strong Medical Imaging Emphasis within the biology major, which may be the only one of its kind at the undergraduate level. Using his twenty years of experience in the field, he has created a program that will increasingly be in demand by students and supported by a medical community in need of medical imaging, ultrasound, and nuclear medical imaging technologists.

Perhaps Dougherty’s greatest achievement is that he has attracted many students to the discipline of applied physics and provided them with meaningful career directions. “I want them to be able to solve problems independently and innovatively, without relying on potted solutions,” he says. “This would demonstrate the level of understanding needed to make new discoveries in an ever-changing world. Our students will contribute to the betterment of society. They’re going to make a difference in the world in so many ways.” 



## Profile:

**Education:** B.S., physics, Manchester University, Manchester, U.K; postgraduate certificate in education, Leeds University, Leeds, U.K.; Ph.D., medical physics, Keele University, Keele, U.K.

**Areas of specialization:** Integrative and interdisciplinary research; applying imaging and signal processing methodologies to problems within medical and life sciences; medical imaging research and practical applications; teaching

**Writing:** Currently writing a book on image processing with medical applications.

**Teaching:** Created CSUCI medical imaging emphasis; created popular talks on physics and on Einstein’s legacy, as part of the World Year in Physics celebration.

**Major Awards:** Hans Sloane Memorial Medal for the highest achievement in science in Northern Ireland (1968); Vice-Chancellor’s Research Fellowship, Monash University (1983-84); Wellcome Trust Research Award for sabbatical at Swarthmore College (1990); Oxford Brookes Research Award (for filing 3 patents), 1991; Distinguished Researcher, Kuwait University (2001).