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Research advice from a Nobel Laureate

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Nobel Prize winner Mario Capecchi speaks to a group from Utah State's Center for Integrated BioSystems at a reception Tuesday afternoon at the Logan Golf and Country Club.

Nobel Laureate Mario Capecchi is a busy scientist, spending his days discovering the genetic roots of diseases. But the University of Utah professor still always finds time to talk to young researchers.

On Tuesday, he came to Utah State University with that goal, passing on his experience during a seminar and luncheon for the school's science graduate students. An afternoon lecture and reception were open to the public.

For Capecchi, participating in the day of events was an easy decision. "(Students) are the future," he said. "Science is always looking toward what's coming rather than what has been. If you don't do a good job with training your next generation, you're in trouble. Our nation is not putting in enough resources to teach new scientists."

At the reception, Capecchi found members of that next generation who were eager for his advice. Bioveterinary science master's degree student Michelle Mendenhall called meeting Capecchi a "once in a lifetime experience." "I'll probably never get to meet another Nobel Laureate," she said. Mendenhall particularly appreciated Capecchi's stories of struggling through early failures in science, but always learning from them.

Aaron Davis, a doctoral student in molecular biology, agreed that meeting Capecchi was inspiring. "He (told the students that he) sort of transforms every few years — he opens himself to a new field," Davis continued. "He talked about how that gives him a naive point of view, and he can ask questions that somebody who has been in the field wouldn't ask. That was eye opening for me that someone who is established and renowned still has that new curiosity. That is something that can be applied as a grad student and can be applied to a career."

Members of USU's Center for Integrated BioSystems' new research student program selected Capecchi as the top pick for their end-of-year speech. The Center for Integrated BioSystems offers yearly fellowship programs to interdisciplinary graduate and undergraduate students for research, travel and educational support. Bart Weimer, CIB director, said that Capecchi was a great choice as a speaker. "He's been very gracious and given sage advice," Weimer said. "He's on the top of the field in biotechnology and medicine."

The 2007 Nobel Prize in Physiology or Medicine went to Capecchi along with Sir Martin J. Evans of Cardiff University (United Kingdom) and Oliver Smithies of the University of North Carolina at Chapel Hill for work on gene targeting. This technique allows researchers to disable any genes in a mouse; by observing what happens to the animal, they deduce the gene's function. For example, when a particular gene was turned off, a mouse was born without hair. The researchers then knew that the gene controls hair growth.

These animal models allow scientists to learn more about the role of genes in embryo development, physiology, aging and disease processes. They also form a basis for investigating new treatments. Capecchi acknowledged that his work points to a new world with options that were once only imagined in science fiction novels. While some are nervous about possibilities like cloning, Capecchi said he is optimistic about the future. "My feeling is that medical science is going to use this to cure disease and use this to extend productive life," he said. "I think that's already occurring.