The Center for Quantitative Science offers a minor for undergraduate students interested in applications of statistical and mathematical tools to problems in ecology, biology, renewable resource management, and the environment. Completing a minor in Quantitative Science provides an excellent way to increase the potential attractiveness of your degree.

The minor requires a minimum of 27 credit hours:

**Core Courses (24-25 credits):**

* Q Sci 381 (Intro to Probability and Statistics)
* Q Sci 482 (Statistical Inference in Applied Research I)
* Q Sci 483 (Statistical Inference in Applied Research II) or Q Sci 403/Stat 403 (Resampling)

**Electives (min. of 3 credits):**

* Partial approved list includes:
  - Q Sci 210/Envir 210 (Intro to Environmental Modeling)
  - Q Sci 403/Stat 403 (Resampling) if not taken as part of the core above.
  - Q Sci 454/Fish 454 (Ecological Modeling)
  - Q Sci 458/Fish 458 (Modeling and Estimation)
  - Q Sci 480/Stat 480 (Sampling Theory)
  - Q Sci 483 (Statistical Inference in Applied Research II) if not taken as part of core above.
  - Q Sci 486/Stat 486 (Experimental Design)

Can also include:

* Q Sci 499 (Undergrad Research) 1-15 credits

Additional courses may qualify at the discretion of the CQS Director.

A minimum grade of 2.0 is required in all courses taken as part of the minor.

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**CQS Faculty (continued)**

**Dr. Andre Punt** is the Director of the School of Aquatic and Fishery Sciences. His main research interests are marine population dynamics, stock assessment methods, risk analysis, and harvesting theory. Dr. Punt teaches Q Sci 381.

**Dr. Sandor Toth** is an Assistant Professor of Natural Resource Informatics in the School of Environmental and Forest Sciences. Dr. Toth’s expertise is in developing and applying quantitative decision systems to problems in natural resource management. He does research in spatial forest planning, optimal reserve design, ecosystem services, and biorefinery siting. Dr. Toth teaches Q Sci 291.

**Dr. John Skalski** is a Professor of biological statistics with appointments in the School of Aquatic and Fishery Sciences and the School of Environmental and Forest Sciences. He is also active in the Interdisciplinary Graduate Program, Quantitative Ecology and Resource Management. His areas of expertise are design and analysis of mark-recapture studies and effects assessment on mobile species. Dr. Skalski teaches Q Sci 480 and 483.

**Dr. Eric Turnblom** is a Professor of Forest Biometrics within the School of Environmental and Forest Sciences. His research interests include: plant population and systems modeling, quantitative silviculture and stand dynamics, forest mensuration, environmental assessment, natural resources inventory, and sampling. Dr. Turnblom teaches Q Sci 482.

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**CQS Minor Requirements**

**Administered by the College of the Environment with cooperation from the School of Aquatic and Fishery Sciences and the School of Environmental and Forest Sciences.**

Vincent Gallucci, Director
Linda Hegrenes, Admin. Assistant
206.543.1191
Anderson Hall Room 6
lindabel@u.washington.edu

For the most up-to-date information, please see the CQS website at:

http://depts.washington.edu/cqs/

2/2013
CQS Courses

Q Sci 190 Quant Analysis for Environ Sci. (5) NW, QSR
Q Sci 210 Intro to Environmental Modeling (4) NW, QSR
Q SCI 291 Analysis for Biologists I (5) NW, QSR
Q SCI 292 Analysis for Biologists II (5) NW, QSR
Q SCI 381 Intro. to Probability and Stats (5) NW, QSR
Q Sci 403 Intro to Resampling Inference (4) NW
Q SCI 454 Ecological Modeling (5) NW
Q SCI 458 Modeling and Estimation in Conservation and Resource Management (4) NW
Q SCI 480 Sampling Theory for Biologists (3) NW
Q SCI 482 Stat. Inference in Applied Research I (5) NW
Q SCI 483 Stat. Inference in Applied Research II(5) NW
Q SCI 486 Experimental Design (4) NW
Q SCI 497 Special Topics (1-15, max. 15)
Q SCI 498 Internship (1-15, max. 15)
Q SCI 499 Undergraduate Research (1-5, max. 5)

For complete course descriptions, please go to:
http://www.washington.edu/students/crs/cat/quantsci.html

CQS Faculty

**Dr. Bruce Bare** is a Professor and Dean Emeritus of the School of Environmental and Forest Sciences. His research interests involve the use of economic and management science tools to problems of forest land use. Dean Bare teaches Q Sci 190, 291, and 381 all online.

**Dr. Trevor Branch** is an Assistant Professor in the School of Aquatic and Fishery Sciences. His research interests include fisheries stock assessment, synthesis, and ecological modeling, applied to both fisheries and large whale problems. Dr. Branch teaches Q Sci/Fish 458.

**Dr. Loveday Conquest** is a Professor in the School of Aquatic and Fishery Sciences. She also directs the graduate program in Quantitative Ecology and Resource Management. Her interests are in the development and application of statistical methodologies in natural resource management. Dr. Conquest teaches Q Sci 482 and 486.

**Dr. Tim Essington** is Professor in the School of Aquatic and Fishery Sciences. His research interest is in quantitative ecology in general, and in the analysis of marine food webs in particular. Dr. Essington teaches Q Sci/Fish 454.

**Dr. Vincent Gallucci** is the Director of the Center for Quantitative Science and the Wakefield Professor of Ocean and Fishery Sciences. His specialty is in population dynamics and management of sharks and sea lions. Professor Gallucci teaches in the Q Sci calculus sequences—Q Sci 291, 292, and 293 and in the statistics sequence—Q Sci 381, 482, and 480.

**Dr. Frank Greulich** is a Professor in the School of Environmental and Forest Sciences. His area of research is in the application of management science and operations research techniques to problems in transportation science. Dr. Greulich teaches Q Sci 381.

**Dr. Daniel Grunbaum** is an Associate Professor in the School of Oceanography. His interests include basic and applied research in spatial ecology, community dynamics, ecology and evolution of behavior, and biomechanics. Dr. Grunbaum teaches Q Sci 210.

**Dr. Ray Hilborn** is the Richard C. and Lois M. Worthington Professor of Fisheries Management in the School of Aquatic and Fishery Sciences. He specializes in natural resource management and conservation. Dr. Hilborn is connected to the Center for Quantitative Science through Q Sci 458/Fish 458.

**Dr. Jay Johnson** is a Professor Emeritus of wood and paper science in the School of Environmental and Forest Sciences. He is interested in mathematical models that capture the essential performance behavior of wood and paper products. Dr. Johnson teaches Q Sci 291 and 292.