Doctoral students are required to develop comprehensive proficiency in economic theory, mathematics, econometrics, and major and minor fields of concentration. In addition to the prerequisites for the master's program, doctoral applicants should also have mathematical statistics and linear algebra. Candidates for the Ph.D. degree must complete the general requirements of the Graduate School, as well as further requirements which are detailed in the department's application material and website (http://www.aae.wisc.edu/).

The Department of Agricultural and Applied Economics offers graduate degree programs leading to the master of arts, master of science, and doctor of philosophy. Long recognized as one of the top programs in the nation, the department is an active center of research and graduate training in environmental and natural resource economics, the economic development of low-income countries, agricultural economics, community economics, and more recently, resource and energy demand analysis.

Graduate students select courses from among the department's advanced offerings in these areas. Active department seminar and workshop series complement formal classroom instruction. In addition, nearly all students work as graduate research assistants on projects with individual faculty members. Faculty and students carry out research in virtually every region of the globe, with Latin America, Southeast Asia, and sub-Saharan Africa as the areas of strongest geographical concentration.

While members of the faculty define themselves professionally in terms of the areas of applied economics within which they work, the graduate programs are predicated on the notion that good applied economic analysis requires rigorous and thorough training in economic theory and econometrics. The Ph.D. curriculum is grounded in comprehensive training in economic theory and econometrics and relies on the doctoral core in theory and econometrics offered by Wisconsin's outstanding economics program. When matched with the department's applied courses, which teach students how to use advanced methods to conceptualize and answer contemporary economic problems, this strong core training prepares students for a variety of challenging careers. A A E graduates have taken positions (https://aae.wisc.edu/grad/placement/) in academic research and teaching; economic consulting in the private sector; and economic staffing in public agencies and nongovernmental organizations at the local, state, national, or international level. A majority of the department's Ph.D. graduates take faculty positions at universities and colleges.

Department faculty are affiliated with a broad range of institutes and centers across the campus, including the Gaylord Nelson Institute for Environmental Studies, the Center for Integrated Agricultural Systems, the University Center for Cooperatives, the Renk Agribusiness Institute, Center for Community Economic Development, and the international area studies programs. Each program has its own rich intellectual life of seminars and other activities.

The department provides student office space, a lounge, and IT support for its approximately 80 graduate students. The Taylor–Hibbard Club, the department's graduate student organization, serves as a link between graduate students and the faculty, elects student representatives to department committees, and promotes academic and social activities for its members.