TEXAS A&M UNIVERSITY
Ecology &
Conservation Biology

PROSPECTIVE STUDENT REFERENCE GUIDE

B.S. Ecology and Conservation Biology

Department of Ecology and Conservation Biology
Prospective Student Reference Guide

Contents

Department of Ecology and Conservation Biology

The Department of Ecology and Conservation Biology (ECCB) at Texas A&M University provides advanced educational opportunities that prepare undergraduate students for leadership in the stewardship and study of terrestrial and aquatic ecological systems. A Bachelor of Science degree in Ecology and Conservation Biology emphasizes fundamental ecological knowledge and its application to biodiversity conservation, environmental health, and management of complex systems, involving aspects of ecology from genes to ecosystems at scales from local to global. Four degree tracks (Ecology and Conservation Biology, Ecoinformatics, Forest Resources, and Vertebrate Zoology) are offered to provide flexibility in preparing for a given career path.

ECCB's goal is to educate and train students in ecology and the application of ecological knowledge and methodologies to solve problems. Our curriculum is characterized by strengths in courses that emphasize biodiversity, ecosystem structure and function, data analysis, and human-natural system interactions. Our experiential learning affords many opportunities for research experiences in Texas, the nation and internationally as well as internship and study abroad opportunities.

In the current job market and emerging fields of study, our curriculum encompasses these highly sought areas of knowledge and skills. At a time with increased societal and environmental pressure on natural and managed ecosystems, we prepare students for careers in conservation organizations, natural resource agencies and environmental consulting companies and for pursuing advanced graduate degrees in organismal biology, ecology, conservation biology and veterinary school.

Advising

WFES Advising Hub
eccb.tamu.edu/academic-advising

Curriculum Options

Ecology and Conservation Biology majors must choose one of the following specialized tracks:

Degree Tracks

Ecology & Conservation Biology

The Ecology and Conservation Biology track is designed to meet the needs of students interested in pursuing careers with natural resource agencies, conservation and environmental organizations, environmental consulting firms, and education and research institutions as well as a graduate degree in natural sciences. Students enrolled in this track gain an understanding of the core body of knowledge and acquire the tools for understanding issues related to conserving, managing, and restoring species, habitats, and ecosystems in ecological concepts, ecological practices, human-environmental interactions, and biodiversity exploration and conservation. This track accomplishes this by offering a diversity of courses, including higher-level electives that allow students to tailor their education to fit their interests, including the option to become certified through organizations such as the Ecological Society of America and the Society for Ecological Restoration. Students completing this track will have a strong background in ecosystem functioning, field experience, human and ethical dimensions, organism biology, and quantitative applications.

Ecoinformatics

Ecoinformatics is an emerging field, and this track prepares graduates to become experts in integrating digital and information technologies, such as GPS (geographic position system), satellite and UAV (unmanned aerial vehicle) imagery, and advanced field sensors with ecological data analysis in complex ecosystems to detect, evaluate, and predict ecological patterns, disturbances, and processes. The Ecoinformatics track provides students with training in theories and applications of ecological data analysis, natural resources and ecological modeling, and spatial information sciences that will prepare them for handling complex and interdisciplinary ecological datasets and understanding contemporary environmental challenges. Students completing this track will have the ability to use advanced technologies to collect data from genomic to landscape levels and beyond. A diverse curriculum provides students with the ability to perform spatial analysis, ecological modeling and other quantitative methods. This track prepares students for careers with natural resource agencies, environmental consulting firms, conservation organizations, and graduate degrees that require knowledge and ability to transform data into ecological information useful for solving environmental problems and informing policy and decision making.

Forest Resources

The Forest Resources track builds on the ecology and conservation foundation of the ECCB major core. As such, it prepares students for a broad array of career opportunities, from that of a professional forester or natural resources specialist with government natural resource agencies, forest resources companies, conservation and environmental organizations, environmental or forestry consulting firms, urban forestry companies, and agencies. This track also

prepares students to pursue a graduate degree in areas related to forest ecology and natural resources. Students obtaining a degree in Ecology and Conservation Biology. The Forest Resources track is a Society of American Foresters (SAF)-accredited curriculum in forestry. Students obtaining a degree in Ecology and Conservation Biology gain an understanding of ecological concepts and practices, human-environmental interactions, and principles of conservation. Students in the ECCB Forest Resources track also learn important concepts in forest biology and ecology, assessment, and management and are exposed to exciting areas of increasing importance such as climate change, fire, remote sensing, forest insects and diseases, and forest genetics. Students may use free electives to broaden their experience outside of natural resources or to add additional courses of interest within the other ECCB tracks, including study abroad.

Vertebrate Zoology Track

(pre-vet option)

The Vertebrate Zoology track is tailored specifically for students with a deep interest in vertebrates, their diversity, ecology, and conservation. This track permits the inclusion of courses specifically required by schools of veterinary medicine (pre-vet program). The Vertebrate Zoology track capitalizes on the collective experience of ECCB faculty in the areas of vertebrate ecology, evolution, genetics, anatomy, physiology, and behavior to provide a comprehensive understanding of vertebrate biology and ecology that will prepare students for professional studies, as well as careers within government and non-government agencies associated with the conservation and management of vertebrates. In addition to core courses in ecology and conservation, ECCB students enrolled in this track complete coursework in vertebrate ecology, diversity, and evolution and may choose to enroll in national or international field courses that focus on vertebrates, including their collection and identification. Students on this track may also use free electives to personalize or broaden their experience or tailor to meet certification requirements for many vertebrate-focused professional societies (e.g., American Fisheries Society or The Wildlife Society).

How To Apply

You are a domestic freshman if you>

- are a student without college credit or
- earned college credit prior to high school graduation (dual credit/early college high school) and
- are a citizen or permanent resident of the United States or have applied for permanent residency or are graduating from a Texas high school after three years in residence in Texas (please review Senate Bill 1528)

You are an international freshman if you>

- are not a citizen or permanent resident of the United States or
- are not graduating from a Texas high school after three years in residence in Texas (please review Senate Bill 1528) and
- are a student without college credit or
- earned college credit prior to high school graduation (dual credit/early college high school)

Admission Application

Submit your application through APPLYTEXAS or THE COALITION. The application you choose will not affect your admission decision.

APPLYTEXAS: goapplytexas.org

THE COALITION: coalitionforcollegeaccess.org

After You're Admitted

- Accept offer and register for a New Student Conference (NSC) at applicant.tamu.edu
- Complete the task list at applicant.tamu.edu
- Fulfill Texas Success Initiative (TSI) requirements
- Submit proof of bacterial meningitis vaccination
- Send final high school transcripts (and college if applicable) by August 15
- Review International Student Services – New Student Information (if applicable)

How To Be Admitted as a Freshman

You may be admitted one of two ways:

1. Top 10% Admits

You qualify for automatic admission if you:

- attend a public or private high school in Texas, and
- rank in the top 10% of your graduating class on or before the application deadline, and
- satisfy the State of Texas Uniform Admission Policy, and
- complete the new foundation plan with the Distinguished Level of Achievement
- make sure all required documents are received by the application deadline.

Texas residents attending out-of-state schools are eligible for top 10% admission at Texas A&M University. A residency questionnaire must be submitted to determine eligibility.

2. Review Admits

If you do not qualify for top 10%, but meet the State of Texas Uniform Admission Policy, your application file, which includes all academic and non-academic factors you noted throughout your high school career, will be reviewed in a holistic manner. Holistic review is a thorough, individualized, and complete assessment of your application file. We will consider the following:

- Information found in your application, essay and academic record
- Involvement in extracurricular activities and community service
- Leadership and employment opportunities
- Talents, awards and honors
- Hardships, challenges and unique experiences

Students applying for Fall admission may receive a decision within a month of file completion. However, applying early does not guarantee an early decision. Generally, most students in review will receive a decision between January 1 and late-March. ECCB does not participate in the University's PSA program.

How To Be Admitted as a Transfer

Required coursework for transfer may be found under the College Agriculture and Life Sciences section on the Transfer Course Sheets webpage at https://admissions.tamu.edu/resources/future-students/transfer-students.

Visit the link above and expand the **College of Agriculture & Life Sciences** section under **Transfer Course Sheets**. Scroll down to the **Ecology and Conservation Biology** major and click the academic year in the **Course Sheets** column to review the transfer requirements.

- Ecology and Conservation Biology
- Ecoinformatics
- Forest Resources
- Vertebrate Zoology

Competitive applicants will have the required coursework completed by the application deadline. Applicants to the summer/fall term **may be** asked to submit spring final grades, this is not a guarantee. Summer coursework **will not** be considered for summer/fall applicants. Fall coursework **will not** be considered for spring applicants. Applicants to the spring term should have the required coursework completed by the end of Summer II semester before applying. Applicants are encouraged to contact an academic advisor if they have any questions.

Scholarships

A list of scholarships and criteria may be found at https://eccb.tamu.edu/scholarships-and-financial-aid. Each year the University Scholarship Application is open from October 15 to February 1.

Freshman Scholarships

ECCB offers several freshman scholarships awarding up to $5000 per year. Applications are available at the Texas Common Scholarship Application on the Texas Common Application Website.

Continuing Undergraduate Student Scholarships

ECCB offers several scholarships for continuing students. Students must be enrolled full-time during the semesters the scholarship is awarded. Scholarships awards vary depending on the availability of funds each year. Students must complete the University Scholarship Application between October 15 and February 1 each year.

Other Scholarship Opportunities

Texas A&M offers many financial aid options to help you pay for college costs. Visit the Scholarships and Financial Aid website to learn about applying for financial assistance at financialaid.tamu.edu.

New Student Conference

Your NSC is an important two-day event where you will meet your advising team who will help you register for classes! Visit the NSC website at newaggie.tamu.edu for more information on dates, cost, registration, and other requirements such as mandatory paperwork, training, and testing that may be required of you.

ECCB Minor

The minor in Ecology and Conservation Biology is offered as a supplement to other related majors (15 credit hours). By completing the minor, students will gain a foundation in the complex interactions of the Earth's biodiversity and ecosystems. These basic principles may be applied to biodiversity conservation, assessment of environmental health, and the management of complex systems involving aspects of ecology ranging from genes to ecosystems and their interactions with landscape, hydrology, and climate.

Program requirements: https://catalog.tamu.edu/undergraduate/agriculture-life-sciences/ecology-and-conservation-biology/ecology-conservation-biology-minor/#programrequirementtext

Professional Society Certification

Students can work with their advisor to take specific coursework to tailor to meet certification requirements for professional societies such as the Ecological Society of America, Society for Ecological Restoration, American Fisheries Society, and the Wildlife Society.

Society of American Foresters Accreditation

The Forest Resources track is SAF accredited. Programmatic accreditation allows an academic institution to demonstrate a commitment to quality and to ensure that its degree programs are performing at the level required by the profession they serve. The Forest Resources accreditation demonstrates to students, parents, and employers that the program:

- Participates in a structured process to assess, evaluate, and improve quality
- Involves faculty, staff, and students in the self-assessment and continuous improvement process
- Focuses on learning outcomes
- Produces graduates who are well prepared for the profession
- Meets education standards for registration, licensing, and certification boards

Advanced Degrees

Graduate degrees in Ecology and Conservation Biology (Ph.D. and M.S.) are designed primarily for students who are pursuing an academic or research career in ecology and/or natural resource management, with an emphasis on forest or rangeland ecosystems. Specialization is available in four main broad research areas: ecosystem science, ecosystem management, genetics, systematics, evolution, and spatial sciences.

The Vertebrate Zoology track prepares students for medical or veterinary school.

- Meets all Medical School Requirements (https://catalog.tamu.edu/graduate/admission/college-school--information/medicine)
- Meets all Veterinary School Requirements (https://vetmed.tamu.edu/dvm/admissions/prerequisites)

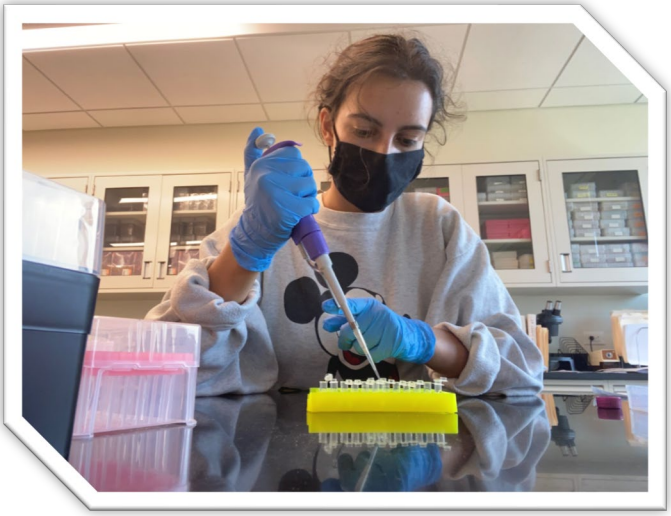
Professional School Programs

- Medical School
- Veterinary Medicine
- Dental School
- Pharmacy School
- Physical Therapy School
- Allied Health
- Nursing School
- Law School

High Impact Opportunities

High-impact learning happens when students are actively engaged in the educational process and their experience expands beyond the classroom and is applied in their personal and work lives. High-impact learning provides hands-on experience and the ability to work closely in a diverse setting. Students engaged in high-impact learning often see improvement in grade point averages and are more engaged in their education. Opportunities include:

- Education abroad
- Internships
- Undergraduate research
- Course field trips
- Learning communities
- Collaborative projects
- Diversity/global learning
- Honors programs



ECCB offers several faculty-led Education Abroad programs where students travel to the Caribbean, Amazon, and South Africa to engage in exciting exploration adventures and experience other cultures and environments. ECCB also works with outside organizations to provide internship opportunities for students. Faculty have opportunities for outstanding students to conduct undergraduate research for course credit.

Amazon River Tropical Biology

Late December until early January each year instructors lead an Education Abroad trip to the Amazon River addressing the ecology, geography, and culture of the Amazon River and Rio Negro, the huge black-water tributary that joins the Amazon near the city of Manaus. Students explore the world's most bio-diverse region during a 10-day, boat-based expedition that embarks from Manaus, Brazil. The group experience forests, rivers, plants, animals, and agricultural practices and living conditions in remote villages. During the following spring semester, the students research topics based on their field trip for presentation during weekly sessions. For more information, visit abroad.tamu.edu.

Caribbean Tropical and Field Biology

Each year from late May to mid-June, students travel to Trinidad and Tobago with instructors for a faculty-led Education Abroad to conduct field research and complete class projects. Individual and group research projects include, but are by no means restricted to, forensic entomology, host-parasite studies, basic ecology, and general biodiversity surveys. Students design projects, collect data, analyze results, and prepare a professional research paper. Throughout the program students participate in numerous hikes and other outdoor activities (some of which can be challenging) that introduce students to the diverse tropical flora and fauna of the Caribbean. For more information, visit trinidad.tamu.edu or abroad.tamu.edu.

South Africa

During winter break in odd years, participants should be interested in learning about vertebrate natural history and approaches to the conservation of natural resources in a developing country. These objectives will provide students with first-hand experience of a wide range of ecological, economic, and social factors influencing the effectiveness of conservation in South Africa and provide students with a field experience in vertebrate natural history in a developing country. Students will be exposed to unique biodiversity hotspots and vertebrate communities unlike anywhere else in the world. This Education Abroad satisfies one writing-intensive requirement. For more information, visit abroad.tamu.edu.

South Africa Biodiversity Conservation and Ecotourism

In summer late May to late June, students travel to South Africa with instructors for a faculty-led Education Abroad in biodiversity conservation and ecotourism. The overarching goal of this Education Abroad is to explore that diversity in all its forms and to gain an understanding of how diversity underpins the country's ecotourism industry, one of its most important foreign currency earning sectors. During the month-long course, students will visit numerous parts of the country ranging from the Cradle of Humankind to the Indian Ocean coastline and the world-famous 5 million-acre Kruger National Park, where they will experience the stunning wildlife in safari-style vehicles and on foot. For more information, visit abroad.tamu.edu.

Ecology And Conservation Biology Careers

The U.S. Bureau of Labor Statistics (BLS) mentioned 85,000 jobs in the fields of Ecology and Conservation Biology in 2018, such as Environmental Scientists and Specialists, with a projected increase in employment of 8% in the next 10 years, which is faster than the average of 5% estimated for all occupations.

Heightened public interest in the hazards facing the environment, as well as increasing demands placed on the environment by population growth, are expected to spur demand for environmental scientists and specialists.

For Conservation Scientists and Foresters, the U.S. BLS shows almost 33,000 jobs in 2018 with a projected rate of growth of 3% and 1,000 new positions by 2028. For Zoologists and Wildlife Biologists, the U.S. BLS shows over 19,000 jobs in 2018 with a 5% rate of growth, with additional 900 jobs needed by 2028. The long-term projections for Texas 2016-2026 for Conservation Scientists show a 9.1% increase, while for Environmental Scientists and Specialists the change is high at 16.5% or 830 new jobs, starting from a base of 5,040 jobs. For Zoologists and Wildlife Biologists, the decade-long projection until 2026 shows an increase of 12.1% or 40 new jobs. As such, given the projected demand for ecology-related jobs in Texas and nationwide, there is and will continue to be a significant need for ECCB graduates in the field.

Ecology and Conservation Biology Track

- Natural resources agencies
- Conservation and environmental organizations
- Environmental consulting firms
- Education and research institutions

Ecoinformatics Track

- Natural resources agencies
- Environmental consulting companies

Forest Resources Track

- Professional forester
- Natural resources specialist with government natural resources agencies
- Forest resources companies
- Conservation and environmental organizations
- Environmental and forestry consulting firms
- Urban forestry companies and agencies

Vertebrate Zoology Track

- Government and non-government agencies associated with conservation and management of vertebrates
- Veterinary medicine
- Medical school

ECCB Student Organizations

We strongly encourage all students to participate in student organizations. This is a great way to meet fellow students, faculty, and network. Visit the ECCB Student Organizations webpage for more information on student organizations in the department, including the Student Chapter of The Wildlife Society, TAMU Society for Conservation Biology, Texas A&M Society for Ecological Restoration Student Guild, Texas A&M Society of American Foresters, Texas A&M Chapter of American Fisheries Society, and Alpha Zeta.

Society for Conservation Biology

A professional student organization dedicated to connecting students to careers in conservation through professional speakers, volunteer opportunities, field trips, and our annual BioBlitz ecological survey/educational event. We are here to provide a forum for awareness and involvement in local and global conservation issues and promote the development of skills needed by professionals in the field of conservation biology.

Texas A&M Society of American Foresters

A recognized student chapter of the Society of American Foresters, the Texas A&M Chapter seeks to incorporate professional and academic development aspects of SAF with the traditions and camaraderie for which Aggies are known. Students involved with SAF gain experience as well as a professional advantage by interacting with state and local professional chapters, participating in university and departmental events, and actively pursuing national recognition and service, as well as through academic support from peers and professors. Any student interested in seeking a degree or career in forestry, as well as professionals currently employed in a forestry-related field, are welcome at meetings of the TAMU SAF chapter.

Ecological Restoration Club

A professional student organization that supports SER's mission of promoting ecological restoration as a means of sustaining the diversity of life on earth and restoring an ecologically healthy relationship between nature and culture.

Texas A&M Chapter of American Fisheries Society

Student organization whose mission and purpose is to promote the conservation, development, and wise use of the fisheries; evaluate the development and advancement of all branches of fisheries science and practice; gather and disseminate to chapter members, American Fisheries Society members, and the general public scientific, technical, and other information about fisheries science and practice through publications, meetings, and other forms of communication; and encourage the teaching of fisheries science and practice in colleges and universities and the continuing professional development of fisheries workers.

College and University Student Organizations

COALS Council

The College of Agriculture and Life Sciences Student Council is a professional organization that serves as a liaison between students, faculty, and the Dean in the College of Agriculture and Life Sciences. COALS council represents the nearly 8,000 students within the college through service activities, networking opportunities, professional development, and opportunities for funding through scholarships and grants.

Collegiate FFA/4-H

The Texas A&M Collegiate 4-H Club, established in 2009, is one of two collegiate 4-H organizations in the state. The club aspires to offer members quality career and professional development experiences, including a scholarship program, in addition to opportunities to serve 4-H, and non-4-H programs, in the Brazos Valley area and the State of Texas. They strive to meet these goals through a minimum of two social, two service, and two fundraising opportunities every semester. TAMU Collegiate 4-H is open to all Aggies regardless of 4-H experience, major, or classification and welcomes new members at any time.

Future Agriculture and Life Sciences Leaders (FALL)

With a strong commitment to the College of Agriculture & Life Sciences, FALL establishes a foundation of excellence for all students that possess a dedication to agriculture & life sciences by enhancing professionalism, further developing leadership ability, providing diverse opportunities, and encouraging a strong commitment to service while holding all members to the highest level of integrity.

Gamma Sigma Delta

Gamma Sigma Delta is an honor society dedicated to recognizing your academic achievements and/or accomplishments as a student, faculty member, alumnus, or industry and university supporter. Student election to the Society is more than an honor. It is a challenge and an obligation to contribute to the understanding and furthering of agriculture and related sciences which are expanded to include, but are not limited to, forestry, natural resources, statistics, human ecology, and veterinary medicine. The purposes of Gamma Sigma Delta are to promote and to recognize achievements of individuals who excel. Membership in Gamma Sigma Delta is often recognized by recruiters, colleagues, and foreign and domestic governments as an indicator of exceptional academic and/or professional performance.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