



Royal University of Bhutan



College of Natural Resources

Prospectus 2024

STUDY AT COLLEGE OF NATURAL RESOURCES

The College of Natural Resources was established in 1992 by the then Ministry of Agriculture and Forests (MoAF) to train Extension Agents. The concept of training is based on the Bhutanese farming system in which crops, livestock and forests are integral parts of the rural livelihood system. Towards late 1980s, the MoAF reviewed the policy of Renewable Natural Resources (RNR) sector development, and one very important outcome of the review was the integration of training programs of the different departments under the MoAF. The National Agriculture Training Institute at Paro, the Royal Veterinary Institute at Serbithang and the Bhutan Forestry Institute at Taba were brought under one umbrella and the then Natural Resources Training Institute (now known as the College of Natural Resources) was established at Lobesa with funding support from Swiss Development Corporation (SDC), Helvetas and Royal Government of Bhutan. With the launching of the Royal University of Bhutan (RUB) in the year 2003, the then NRTI was inducted as a member college of the university in the year 2004. It was renamed as the College of Natural Resources and started offering degree programmes.

Vision

The College of Natural Resources will strive to be a dynamic and internationally recognized centre of learning that promotes GNH and sustainable development through leadership in education, research and professional services in Agriculture, Natural Resources Management and Rural Development.

Mission

*Offer relevant broad-based higher education in Agriculture, Natural Resources Management, Food, Climate, conservation and Rural Development.

*Serve as a resource centre for high quality professional and advisory services in the area of Agriculture, Natural Resources Management, Climate and Rural Development.

*Generate and transfer knowledge through research in Agriculture, Natural Resources Management and Rural Development.

*Promote academic culture infused with GNH values for intellectual and personal development.

Core Values

*Respect for people and the environment.

*A love for learning that fosters Creativity and innovation.

*Professionalism with Accountability and Transparency.

*Teamwork and collaboration.



Message from the President

The College of Natural Resources, since its establishment has played a major role in the development of agriculture and preservation of our rich natural resources through the development of the much needed human resources at all levels in the country. We have come a long way from be-



ing a training institute for the Ministry of Agriculture and Forests to a premier institution of higher education in Agriculture, Natural Resources Management and Sustainable Development. Today, we can look back and be proud of our achievements. While we have still a long way to go, I feel that firm roots have been established towards achieving our vision of becoming a Centre of Excellence for higher learning in the areas of agriculture, food, climate, conservation, sustainable natural resources management and sustainable development.

The College now offers six undergraduate programmes, 3 master's programmes and a PhD (Doctorate) Programme. These programmes were developed through wide consultations and due diligence. Our programmes are designed not just to get job but are also oriented towards intellectual and personal development. A special feature of our programmes is the focus on experiential learning and skill oriented training through several field visits in the form of block days, block weeks, study tours and field placement. While our programmes of study are largely science oriented, they also allow for wholesome development of students based on the 3 "H" concept of education - the Head (Intellectual), the Hands (Skill) and the Heart (Value).

Over the years, the need for internationalization of our programmes has been felt and discussed. In recent years, we have started to receive a few international students not only from SAARC region but also as far as from Tanzania, Germany and the US. I am happy that we could come out with this prospectus and hope it will serve its purpose of making our programmes widely known in the international sphere.

ACADEMIC CALENDER

Semester	Period	Duration
Autumn	Early July to mid-December	17 weeks
Spring	Early February to mid-June	17 weeks



ACADEMICS

POSTGRADUATE PROGRAMMES

The college offers three master programmes and one doctoral degree:

PhD in Climate Studies (3 year; research-based)

The Doctor of Philosophy (PhD) in Climate Studies aims to develop professionals who would contribute to sustainable development by addressing the various impacts of climate change. The programme is intended to enhance the knowledge and skills of the students with specialist competencies in a wide range of subject areas pertaining to understanding climate change and its impact on agriculture, animal production, environment, energy, water, disasters, transport and industries, including human health. The programme provides a platform and professional support in conducting independent research on a wide spectrum of topics related to climate through transdisciplinary approach. The programme prepares the students to pursue a wide range of careers such as researchers, academicians, development specialists, project and programme managers, planners, advisors, and decision makers.

Curriculum Structure: The three-year PhD programme comprises 360 credits spread over six semesters. Semester I has four foundational modules each with 15 credits. Credits will be provided based on the progress made by students. The PhD candidate will have to publish at least two peer-reviewed research articles in peer-reviewed journals, and present one conference and also produce a thesis. The thesis will have to be worth 50,000 to 100,000 words.

MSc in Natural Resource management (2 years, research-based)

The main purpose of the MSc in Natural Resources Management programme is to contribute to the socio-economic development of the nation by increasing the critical mass of qualified citizens and building knowledge-based society. The programme is intended to enhance the knowledge and skills of the mid-level professionals with specialized knowledge and competencies in a range of subject areas pertaining to rural development in general and agriculture, animal production and forestry in particular. These professionals are expected to play a critical leadership role in the management of agriculture, livestock development, and forestry in the country. The programme is targeted towards mid-career agriculturist, foresters, and livestock development workers.

The programme provides opportunities for student to develop research capacity through the process of conducting research independently and develop research skills and critical thinking. Student can focus on a wide range of research topics under agriculture, domains like agronomy, horticulture, organic farming, crop pest and disease management, farm economics, soil fertility management, good agriculture practices, agroecology, food security, climate change impacts on agriculture, commodity chain analysis, gender and farming, agriculture co-operatives, rural urban migration, agriculture extension, rural development, genetics and plant breeding, seed science and technology, post harvest technology, food science and technology, sustainable agriculture and land use types, etc. Under animal science and animal health, areas and research topics such as animal nutrition, dairy, piggery, poultry, feed and fodder, meat science, farm fisheries, animal biology, and fertility are focused. Student can do research in a range of forestry related topics but not limited to, such as forest management, conservation science, wildlife, climate change studies, social forestry, ecology, freshwater ecology, dendrology, geographical information systems and environmental management.

Curriculum Structure: The Master of Science in NRM is a research based programme. The programme consists of 240 credits spread over 4 semesters.

MSc in Conservation Biology (2 year)

The programme is intended to enhance the knowledge and skills of forestry, wildlife and environmental professionals with specialist knowledge and competencies in management and conservation of ecosystems and wildlife species. These professionals are expected to play an advisory and leadership role in the management of species conservation, ecosystem restoration, environmental protection and wildlife management. The programme prepares the students in conducting research, developing skills, planning conservation programmes and making decisions in management and conservation of species. The programme also helps to develop the capacity of the students in research skills through independent research and critical thinking by conducting problem-based research in the field of their interest or based on the needs of the organization who sponsored their study. Students can conduct research in a wide spectrum of topics related to species conservation, wildlife management, impact of climate variability on species, restoration ecology, habitat assessment and management, ecosystem restoration, and wildlife genetics among others.

Curriculum Structure: Master of Science in Conservation Biology is a research-based programme consisting of research publication(s) and a Dissertation component. The programme is a 2-year full time programme comprising 240 credits. However, the credits are assigned only to the taught modules in Semester I of Year I with 15 credits each. Four mandatory foundational modules of 15 credits each are taught, which add to a total of 60 credits in Semester I. At the end of Semester I, students will defend their Research Proposal in a Seminar format, which will be audited and their candidature confirmed by the Confirmation Panel. The remainder one and half years will be devoted to conducting research, including collecting and analyzing data, writing and publication of papers, and writing Dissertation.

Master's in Development Practice(2 year)

The Global Master's in Development Practice (MDP) is an interdisciplinary two-year graduate degree programme providing current and aspiring development practitioners the skills and knowledge to better understand, develop and implement integrated approaches to sustainable development. The launch of a Global MDP programme was the central recommendation of the International Commission on Education for Sustainable Development Practice (ICESDP), which discovered that there is a lack of comprehensive cross-disciplinary programme to train practitioners in the full range of challenges of sustainable development. The Royal University of Bhutan, in conjunction with and with initial financial support from DHI/Infra, entered into an MoU with the Earth Institute at Columbia University, home of the Global MDP Secretariat, to launch an international Master's in Development Practice programme at the College of Natural Resources, which was launched in July 2014.

Curriculum Structure: The MDP is a two-year full-time programme which requires successful completion of 60 credits each semester and a total of 240 credits to gain an award. The programme comprises ten 15-credit modules, a field attachment of 30 credits and a dissertation of 60 credits.

The first semester of Year I comprises four taught modules of 15 credits each. These cover the study of Development Economics, Gender and Development, Environmental Science for Sustainable Development, and GNH, Public Policy and Development.

The second semester of Year I comprises four taught modules of 15 credits each. The modules on Statistics and Research methods introduce students to the fundamentals of research and statistical tools to prepare them for research and data collection during the field attachment and dissertation. In addition, instruction in multidisciplinary subject knowledge will continue with the study of Program and Project Development Management and Sustainable Agriculture Practices.

The final semester (second semester of Year II) comprises writing a Dissertation which bears 60 credits. The proposal for the dissertation will be developed during the second semester of Year I therefore students will be engaged in the field collecting data, analyzing the data and report writing. Students will present and defend their dissertation at the College. A designated supervisor will be appointed for each student with which the students will maintain regular contact.

UNDERGRADUATES PROGRAMMES

Bachelor of Science in Animal Science: The BSc in Animal Science program aims to build national capacity in sustainable livestock development, contributing to rural development and poverty reduction. It focuses on cultivating professionals with applied science skills in animal health and production. Students gain integrated knowledge in livestock production and health management, enabling them to plan, design, and manage livestock farms for potential self-employment. The program emphasizes entrepreneurship through on-campus livestock farms, providing hands-on experience. Students also learn to diagnose and treat livestock diseases, identify zoonotic diseases for public health safety, and develop transferable skills like analytical, communication, scientific writing, and leadership for career progression. The program's overarching goal is to equip students to address livestock-related challenges through scientific research, contributing to food and nutrient security in the country and region.

Curriculum Structure: The four year programme is designed with double exit and double entry possibilities. The first two years of the programme is skill-based, and prepares students to exit with a two year Diploma certificate. On completion of the first two years, those students capable of and wishing to pursue Bachelor programme will continue further for two more years and exit with Bachelor degree.

Bachelor of Science in Environment and Climate Studies: BSc Environment and Climate Studies programme introduces students to a variety of fundamental subjects related to climate and environment focusing on the major elements of environment (land, water, air and living organisms). The programme then advances towards developing the skills in assessing the health of the environment and impacts of climate changes on various aspects of environmental entities. This programme is geared to enhance the ability to apply the knowledge and skills and develop proficiency to find solutions to environmental and climate change concerns. Overall, the programme equips students with the knowledge and skills needed to address pressing environment and climate challenges.

Curriculum Structure: The Bachelors of Science in Environment and Climate Studies (BSc ECS) is a four-year undergraduate degree programme. This programme covers issues related to environmental conservation, sustainable development and climate change resilience. It is a

multidisciplinary programme which emphasises on paying attention to human interaction with the earth system, and interrelationship between and among other sciences such as social sciences, forestry and agriculture.

Bachelor of Science in Forest Science: The BSc in Forest Science programme has made a significant contribution in the development of forestry resources in Bhutan, especially in the areas of forestry extension, forestry management, environmental protection and wildlife conservation. The programme provides a wide range of theoretical and practical skills on forest administration, extension, research, conservation and protection, and production systems. The current programme is the result of a successful development of the forestry programme for about 30 years, which was made possible through a series of improvement process that engage stakeholders.

Curriculum Structure: The four-year BSc programme comprises 480 credits, modules including field attachment and a research project in the 4th year. The mode of study will be full time.

Bachelor of Science in Sustainable Development: The BSc in Sustainable Development aims to equip students with concepts and practices in socio-economic development and environmental protection. Aligned with the country's philosophy of Gross National Happiness, the programme emphasizes a balanced approach to development. It fosters skills in project management, leadership, and research, while instilling transferable skills like problem-solving, collaboration, adaptability, leadership, time management, analytical skills, communication, and creativity. The programme seeks to enhance students' ability to apply knowledge to address diverse development issues.

Curriculum Structure: The sustainable development is three-year programme and is introduced based on a wider understanding that the natural resources are used to the extent that it may be not be sustainable and may not be reversible if the past and the current trend is adopted.

Bachelor of Science in Food Science and Technology: The main objectives of the programme are to train expertise relevant to the field of food science and technology which is currently lacking in Bhutan. It's objectives are also to improving food production technology, understanding the role of traditional food in preserving the cultural identity of a country, enhance the knowledge and skills of food production, processing, food analysis and food technology in production of safe food, developing packaging and labeling food products professionally using the principles of food packing and labeling, and developing new food products applying the knowledge of various subjects within the programme.

Curriculum Structure: The 4-year BSc programme consists of 480 credits with 36 modules including field attachment and a research project in the 4th year. The mode of study will be full time. The programme is a nested Diploma programme with a possibility of students graduating with Diploma certificate after 2 years.

Bachelor of Science in Agriculture

The BSc in Agriculture programme aims to develop human resource in safe food, fibre and animal production in line with principles of organic farming. The programme takes an integrated approach to the design and operation of crop and livestock production systems that are socially responsible, environmentally sound and economically sustainable. The programme is designed to train students in multiple aspects of organic agriculture and the associated processing and marketing chain.

Graduates of the programme will be equipped with the technical competencies, knowledge and skills required to address the challenges and requirement of organic farming. Thus the programme is expected to address the gap in the development of organic farming. Through the programme students will learn about alternative food production systems without using synthetic agrochemicals. The programme comprises modules in alternative agriculture practices with an in-depth analysis of organic production systems, soils and nutrient management, plant and animal health management and farm input and resources management along with a substantial research component.

Curriculum Structure: The BSc in Agriculture programme consists of 480 credits with modules including field attachment and a research project equivalent to 5 modules in the final semester. The mode of study is full time for four years.

AWARD CEREMONY



GAMES & SPORTS

Games and sports promote healthy physical activity and develop social connections among students. The College provides sporting facilities such as:

- A full-size football field
- Basketball courts
- Badminton court
- Volleyball court
- Archery/khuru field



HAPPINESS AND WELL BEING CENTRE

It provides a wide range of services to the students based on five themes such as:

- Leadership of self
- Working with life challenges
- Mindfulness
- Awareness
- Emotional and social intelligence



INTERNATIONAL STUDENTS

The college provides open admission for international students under various scholarship in undergraduate and post graduate programmes. Currently the College has five international students from various countries like India, Pakistan, Hungary, Sri Lanka and Bangladesh. Several students from European countries have graduated.



FAB-LAB and BIO-FABLAB

In April 2022, a momentous occasion unfolded at the College with the inauguration of the Fab-Lab, which is poised to become a hub for innovation and hands-on learning. While the inauguration marked the official commencement, the full functionality of the Fab-Lab was realized only in October 2022 due to the time-consuming installation process. The Fab-Lab has now opened its doors to students, ushering in a new era of practical education and experimentation. The primary objective of the Fab-Lab is to provide a space where students can explore the art and science of making things. The facility is equipped with state-of-the-art machinery, tools, and resources that enable students to engage in hands-on activities, fostering creativity and problem-solving skills. From prototyping to fabrication, the Fab-Lab serves as a dynamic environment where students can bring their ideas to life and gain practical experience in various aspects of manufacturing and design. A significant expansion to the Fab-Lab's capabilities occurred with the introduction of the Bio Fab-Lab in 2023. This specialized facility focuses on the intersection of biology and fabrication, emphasizing the cultivation and creation of living organisms. Unlike traditional Fab-Labs that concentrate on material fabrication, the Bio Fab-Lab delves into the realm of biofabrication, aiming to teach students how to grow everything from living organisms to sustainable materials.

BUSINESS INCUBATION CENTRE

In 2018, the College took a significant step towards fostering innovation and supporting entrepreneurial endeavors by establishing the Business Incubation Centre. This initiative aimed to provide a nurturing environment for students, faculty, and external entrepreneurs to incubate and develop their business ideas within the college's ecosystem.



RESEARCH CENTRES

A. Centre for Environment and Climate Research

The College's Centre for Environment and Climate Research focuses on environmental conservation, climate change adaptation, mitigation and resilient livelihood, food, water and land resources nexus, sustainable development, and Spatial information on biophysical, climate and human interactions. The environment in this context includes air, water, earth, forest, species, and biodiversity among others.

B. Centre for Rural Development Studies

The College's Centre for Rural Development Studies which was launched in 2010 aims to provide a decentralized and flexible training avenue for mid-level professionals, novice practitioners, farmers, and youths, among others. It offers trainings and conducts research in wildlife conservation, climate change, ecotourism, identification of plants and animal, and use of Statistical and GIS tools for research. Recently, the Research Centre has expanded its wing in providing consultancy services, short-term trainings, and entrepreneurship programme. It has an Entrepreneurship Incubation Cell where potential entrepreneurs go through a process of developing and testing a successful farm business.

C. Centre for Sustainable Mountain Agriculture

The research focus of the Centre for Sustainable Mountain Agriculture (CSMA) is specific to agriculture development such as improved and sustainable method of crop production and food processing among others. The Centre conducts both the basic and applied research related to agriculture including livestock. The Centre is responsible for mobilization of funds from within and outside the country for faculty and student research. The centre also engages in collaborative research with relevant organization and provides advisory services in framing policies related to agriculture development.

DISTINGUISHED GUEST LECTURE SERIES



CNR regularly hosts a Guest Lecture Series in which distinguished personalities from within Bhutan and around the world give talks and interact with the students, faculty, and staff.

These talks enable you to:

- * Listen and engage with recognized leaders from various professions
- * Gain exposure to a wide variety of ideas
- * Share your views with influential individuals

In the past, religious leaders, government ministers, diplomats, business executives, academics, writers, artists and social workers have all participated in these interactive sessions.

RESEARCH AND PUBLICATION

Besides teaching, research is one of the main mandates of the Royal University of Bhutan. The faculty members of the College are therefore encouraged to conduct various types of research and innovation activities, which are relevant to the overall socioeconomic development of the nation and creation of new knowledge. The College focuses its research in the field of Agriculture, Animal Science, Forestry, Environment and Climate Studies, Natural Resources Management, and Sustainable Rural Development. The faculty members and students are encouraged to publish quality papers in international and national peer reviewed journals. The College has also produces the Bhutan Journal of Natural Resources and Development journal which is published online and on print. Besides the research and publication, the College also engages in providing consultancy services.





CULTURAL EXCHANGE & INTERNATIONAL STUDY-ABROAD OPPORTUNITIES

The Student and Staff Exchange Program at the College is an invaluable opportunity for students and faculty alike to broaden their academic horizons, cultural understanding, and professional networks. Rooted in the belief that exposure to diverse perspectives fosters innovation and excellence in research. The partnership between the College and the Bhutan Ecological Society (BES) represents a significant step towards promoting international collaboration and academic exchange in the field of natural resource management. The signing of a Memorandum of Understanding (MoU) between CNR and BES underscores their shared commitment to fostering student mobility and cross-cultural learning opportunities.

Under this partnership, CNR welcomes a cohort of international students from various backgrounds and academic disciplines each semester. These students have the opportunity to immerse themselves in the unique academic and cultural environment of Bhutan while studying at the College. They can enroll in a diverse range of courses related to natural resource management, environmental science, conservation biology, and sustainable development, among others. The College's exchange programme facilitates collaborations with partner institutions worldwide.



Our national and international partners include:

- Bhutan Agro-Industrial Limited
- Bhutan Ecological Society
- Europe- Erasmus+
- Jigme Singye Wangchuck Law School, Bhutan
- Ministry of Agriculture and Livestock, Bhutan
- National Centre for Hydrology and Meteorology
- ECOLOG Institute for Social-Ecological-
Research & Education, Germany
- Oregon State University, USA
- Sustainability Laboratory, USA
- Swiss Federal Institute for Forest, Snow and Landscape-
Research WSI
- Bhutan Tarayana Foundation



INTERNATIONAL PROGRAMMES

Join the College of Natural Resources, Royal University of Bhutan, Lobesa, for a unique learning experience. The College offers 20 different International Nature Education and Experience Programmes both in Spring and Fall semesters each year. Of the 20 INEE programmes, 12 are Summer School programmes, three Semester Abroad programmes and five training.

Programmes	Courses	Duration	Fee per student*
Summer School	1 Biodiversity Survey Methods and Conservation Tools	14 days	USD 2,880
	2 Natural Resource Management		
	3 Nature and Wellness		
	4 Bhutanese Culture, Tradition and GNH		
	5 Bhutanese Food and Culture		
	6 Traditional Ecological Knowledge in the Himalayas		
	7 Agriculture Systems in the Himalayas		
	8 Living a Farmer's Life in the Himalayas		
	9 Climate-smart Agriculture using Geo-spatial Technologies		
	10 Wild Edible Plants of Bhutan Himalaya		
	11 Ethnomedicine of Eastern Himalaya		
	12 Learning Statistics using R		
Semester Abroad	1 Agriculture and Food Systems in Bhutan Himalaya	3 Months	USD 5,022
	2 Biodiversity Conservation and Natural Resource Management		
	3 Ethnomedicine in Eastern Himalaya		
Training	1 Community-based Forestry for Conservation and Livelihood	7 days	USD 2,600
	2 Biodiversity Conservation Techniques		
	3 Organic Agriculture		
	4 Learning Statistics using R		
	5 Climate-smart Agriculture using Geo-spatial Technologies		

HOW TO APPLY

After choosing the programme you are interested in, fill the registration form and submit/email it to the following address:

Dean, Research and Industrial Linkages, dril.cnr@rub.edu.bt or Liaison Officer, sonamt.cnr@rub.edu.bt

The registration form is available in the following college web link:
www.cnr.edu.bt .



ADMISSIONS

Admission to CNR is done after the declaration of Class XII results. While all Class XII Arts, Commerce, and Science students are welcome to apply, please note that admission to the Sustainable Development program is exclusively reserved for Arts, Commerce, and Science students based on merit ranking. Join us for an enriching academic journey where you'll have the opportunity to explore a wide range of courses and unleash your potential. Apply and take the first step towards a rewarding future at our esteemed institution.

International students who are interested in enrolling at the College should contact the Research and Industrial Linkages Office at dril.cnr@rub.edu.bt / sonamt.cnr@rub.edu.bt

APPLY NOW

*Application guidelines are available on the CNR website - www.cnr.edu.bt
Apply online by completing the online form available on the website.*

*For any further queries on admissions, please send us an email at dril.cnr@rub.edu.bt / sonamt.cnr@rub.edu.bt / singyew.cnr@rub.edu.bt
visit us on Facebook <https://www.facebook.com/CNRRUB/>*