



AMERICAN UNIVERSITY
OF SOVEREIGN NATIONS

Master of Science & Technology for Sustainability

The Master of Science and Technology for Sustainability (MS) program is a master's degree program intended to prepare students to apply sustainability theories, concepts, principles and approaches for roles as professionals and community leaders to build sustainable communities. Students will learn academic and technical skills, as well as ethical insights into the complex interplay of social, economic and environmental problems in the world to help them analyze and understand sustainability challenges at local, regional and global levels and scales to propose innovative social, technical and institutional solutions. The program will draw upon the wide international experience of the faculty of AUSN, as well as their multidisciplinary qualifications. Students will take half their credits in compulsory courses, half their credits in elective and optional courses and 6 credits of required supervised dissertation work to complete the degree program.



Mission

To promote the ethical reasoning of all peoples, by providing essential competent graduate education, knowledge, skills, research, service, creative and analytical critical thinking ability, and leadership to those graduate students who are dedicated to enhancing the sustainability of all global communities.

Vision

To be the Master of Sustainability Science degree program of choice for those individuals who are committed to learning sustainability science applicable for community, global leadership, and are dedicated to promoting sustainable development and protecting the well-being of the environment and public of all nations and all peoples.

Values

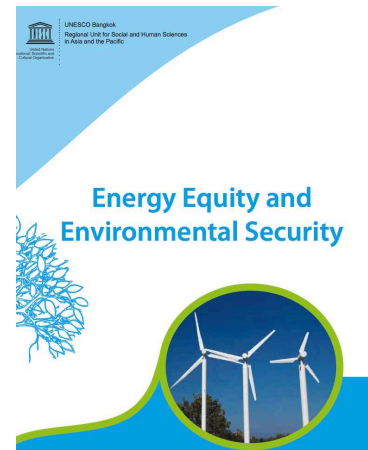
The American University of Sovereign Nations (AUSN) is committed to educating students that will be global citizens with ethical integrity able to guide policies and actions that will lessen the gaps that exist between the health, well-being and life outcomes of the populations of the privileged and those who are not. Global



responsibilities for promotion of a good life for all are necessary for our sustainable future.

Purpose

The purpose of Master of Science and Technology for Sustainability (MS) program of study is two-fold. First, upon successful completion of the Program and master of its required competencies, graduate students will be prepared to work in the fields of sustainability and development, and influence and improve community outcomes by working for academic institutions, think tanks, public health agencies, non-governmental organizations, United Nations or government. The program is also offered to existing professionals who will benefit from the added knowledge and expertise to enhance their career goals and aspirations.



Curriculum

To complete the Master of Science and Technology for Sustainability (MS) program, students must satisfy the MS course curriculum, which requires a minimum of 32 semester credit hours. The MS program can be completed by either full-time or part-time study, and accordingly, can be completed within one to two years of study (480 clock hours of instruction).

Compulsory Courses (20 credit hours)

- Applied Research Seminar (2 credit hours)
- Environmental Ethics (3 credit hours)
- Ethics of Science and Technology (3 credit hours)
- International Development and Sustainability (3 credit hours)
- Master's Thesis and Public Defense (6 credit hours)
- Sustainability Science (3 credit hours)

Elective Courses (select at least 12 credit hours)

- Bioethics and Values Education (3 credit hours)
- Biosystematics and Biosphere (2 credit hours)
- Conflict Resolution, Peace-making and Justice in Global Understanding (3 credit hours)
- Core Concepts in Bioethics and Cultural Frameworks (3 credit hours)
- Disaster Resilience (3 credit hours)
- Global Environmental Change (3 credit hours)
- Global Public Health and Peace (2 credit hours)
- Human Research Subject Protection (3 credit hours)



- Indigenous Knowledge Systems in Public Health Care (3 credit hours)
- Indigenous Traditions and Bioethics (3 credit hours)
- New Perspectives on Sustainability (3 credit hours)
- Public Health Law, Ethics and Policy Analysis (3 credit hours)
- Sustainability, Peace and Global Development Research Seminar 1 (3 credit hours)
- Sustainability and Business (3 credit hours)
- Sustainable Innovations (3 credit hours)
- Sustainable Urban Futures (3 credit hours)

Required Core Competencies

Upon graduation, all MS graduates will have the following core competencies to prepare them to become effective leaders of tomorrow. Students will also have the core competencies as described under each course syllabus in the AUSN Catalog for their elective courses.

I. Sustainability Science

1. Acquire skills of evidence-based approaches to sustainability challenges arising from the interactions between human and environmental systems.
2. Analyze sustainability issues as an interdisciplinary problem.
3. Analyze sustainability issues by linking human development and conserving planets life support systems with planetary boundaries.

II. Ethics of Science and Technology

1. Analyze ethical situations that arise in science and technology.
2. Identify ethical dilemmas through different lens, including those of gender lens, ability studies, and the perspectives of indigenous communities.
3. Create and scrutinize policies and practices in various settings relating to science and technology.
4. Understand scientific responsibility.
5. Apply ethics to examples of emerging science and technology.
6. Understand the philosophy of science.

III. International Development and Sustainability

1. Acquire skills of evidence-based analysis of international development issues.
2. Analyze theories of sustainability with in the context of 21st century situations related to achieving development sustainably.
3. Develop research problems linking development questions with sustainability.

IV. Ethics and Sustainability

1. Acquire skills of evidence-based approaches to sustainability challenges arising from the interactions between human and environmental systems.
2. Develop a comprehensive understanding of human and environmental dimensions of climate change,



3. Analyze sustainability issues by linking human development and environmental change.
4. Acquire skills of evidence-based approaches to sustainability challenges from a multi-disciplinary perspective.
5. Analyze how new methodological issues in sustainability studies from interdisciplinary fields such as science and technology studies.
6. Apply knowledge to real-life issues locally, regionally and globally.
7. Analyze theories of sustainable development with in the context of 21st century challenges to sustainability.

Syllabus of Compulsory Courses

Environmental Ethics (ENET) (3 credit hours)

The **purpose** of this course is to examine environmental ethics, which is critical for the survival of many local communities living in fragile communities, as well as the global community.

The **objectives** of this course are to obtain a comprehensive understanding of environmental ethics around the world, and to be able to apply this to decision-making.

Subjects:

1. Ecology and life
2. Biodiversity and extinction
3. Environmental sciences
4. Environmental economics
5. Sustainable development
6. Environmental ethics
7. Traditional knowledge, ethics and sustainable development
8. Asia-Pacific environmental ethics
9. Love of nature and ecological ethics
10. Biodiversity
11. Universalism and Ethical Values for the Environment
12. Ethics of animal intensification and the environment
13. Carbon emissions and climate change
14. Energy equity and environmental security
15. Community engagement methods related to mining, energy production, clean-up of polluted sites
16. Water ethics
17. Occupational safety and environmental health

Ethics of Science and Technology (ESTE) (3 credit hours)

The **purpose** of this course is to provide the student a review of the ethics of science and technology, excluding genetic technology (which is covered in the **Bioethics and Genetics** course).



The **objectives** of this course include to present to the student a general framework of the pertinent subject matters of health behavior and how they affect the public's health through their interaction with the individual in the community.

Subjects:

1. Introduction to science, technology and philosophy
2. Ethics of science and scientific responsibility
3. Science and technology over time and culture
4. Nanotechnology ethics, including environmental and health impacts
5. Information ethics and privacy; artificial intelligence, the singularity, cyborgs
6. Nuclear ethics
7. Disaster ethics
8. Ethics of car use; MDGs and sustainability
9. Anthropological research; nature of science; UNESCO Status of Scientific Researchers
10. Biological Weapons Convention
11. Biosafety and dual use dilemmas
12. Commercialization of science and technology
13. Ethics of Food and Agriculture
14. Future of EST and bioethics

International Development and Sustainability (IDSU) (3 credit hours)

The **purpose** of this course is to introduce the student to the historical roots of development theory with the emerging core issues of sustainability.

The **objectives** of this course are for the student to learn how to understand critical challenges of achieving human development sustainably.

Subjects:

1. Historical roots
2. Ethics in international business
3. Economic theory
4. Population growth
5. Poverty
6. Energy security
7. Food security
8. Urbanization
9. Technological change
10. Globalization
11. Local environmental change
12. Regional change
13. Development activities
14. Indigenous concepts
15. Transportation
16. Cultural exchange



Master's Research Seminar (MSRS) (2 credit hours)

The **purpose** of this course is to help develop research ability in the students so they can apply the theories they learn to actual practice.

The **objective** of this course is for the student to learn how to apply research skills, and how to evaluate their research.

Subjects:

1. Introduction to the scientific method and scientific ethics
2. Making and evaluating hypotheses
3. Discourse and presentation skills
4. How to obtain ethical approval for research
5. How to evaluate and publish results of research

Master's Thesis and Public Defense (MTHE) (6 credit hours)

The **purpose** of this course is to prepare the student for writing and presenting a dissertation of approximately 20,000 words. Great care and detail is taken to review and explain thoroughly the design, organization, research, detailed literature bibliography, conclusions, recommendations, and final preparation of the dissertation.

The **objective** of this course is to have the student complete preparation of their MPH dissertation and to successfully conduct the Public Defense of their dissertation.

Content:

A wide variety of relevant academic papers and papers are reviewed to explore comparative methodologies in research, and students listen to other student's defenses to help prepare for their own defense.

Sustainability Science (SUSC) (3 credit hours)

The **purpose** of this course is to provide the student with an understanding of the emerging science of sustainability.

The **objectives** of this course are for the student to learn to look at sustainability as an emergent problem arising from the interactions between human and environmental systems.

Subjects:

1. Sustainability science
2. Well being
3. Community engagement
4. Empowerment engagement
5. Global concepts
6. Justice
7. SDGs
8. Ecology
9. Indigenous communities
10. World views of nature
- 11 Political science
12. Evaluation of community engagement
13. Government policies



14. Public attitudes
15. Sustainability behavior
16. Interdisciplinary roles
17. Diet

Syllabus of Selected Elective Courses

Bioethics and Genetics (BEGE) (3 credit hours)

The **purpose** of this course is to consider the ethical, legal and regulatory issues that underlie clinical and population genetics such as basic genetics and molecular biology, DNA science, genomics and proteomics.

The **objectives** of this course include to introduce the basics of genetics and reproduction and discuss the ethical, legal and social (ELSI) issues. To consider the balance between the roles of national and international genetics societies such as the International Human Genome Organization in regulation of genetic technology, individuals and populations.

Subjects:

1. Genetics, DNA and mutation
2. Testing for cancer genes susceptibility
3. Genetic privacy and information
4. Genetic privacy and US laws
5. Public health ethics for professionals; international genetic guidelines
6. Screening genetic diseases among the population
7. Eugenics
8. Genetically engineered plants and animals
9. Ethics of genetic engineering
10. Genetically modified foods
11. Legal, regulatory, scientific, policy and ethical aspects of biotechnology
12. The Human Genome Project
13. Gene therapy
14. Eugenics in depth
15. Population Genetics - HGDP Ethics, indigenous populations and genetic histories
16. Prenatal diagnosis of genetic disease
17. Cloning and stem cell research
18. Assisted reproductive technologies
19. Sex selection
20. Designer children

Bioethics and Values Education (BVED) (3 credit hours)

The **purpose** of this course is to examine the methodology, goals, practice and evaluation of bioethics and values education.

The **objective** of this course is to introduce the goals of bioethics education in the context of values education, through all stages of moral development.

Subjects:



1. Values in education
2. Integration of ethics and values into all fields of education
3. Teaching about autonomy and justice through bioethics: the love of life
4. Indicators of the success of education
5. Neurology, touch, education and multilingual brains
6. Teaching concepts of benefit and risk
7. Disability, ability and education
8. Environmental ethics education
9. Moral games for teaching bioethics
10. Finding our own identity and its relationship to how we help others explore their own identity: the essence of teaching?
11. Developing personal action plans for enhanced teaching
12. How to measure personal moral development in education
13. Review of indigenous values among the education curriculum in 47 countries of Asia-Pacific nations
14. Integration of indigenous knowledge systems into classes and the curriculum
15. Analysis of the goals for education based on teacher's action plans
16. How to teach about federal, state, community law and customs and United Nations declarations and their implementation (or lack of) across the curriculum
17. Developing professional skills for bringing the best out of every learner
18. How to evaluate educators ethically and positively
19. Teachers and learners as agents of community change
20. Developing and nurturing environmental activism
21. Nurturing relationships between teacher, student and parents and protection of children's rights

Biosystematics and Biosphere (BIOS) (2 credit hours)

The **purpose** of this course is to provide the student the basics of biosystematics and ecology, so that students will be able to consider the environment from an ecological perspective.

The **objectives** of this course are to introduce the basics of biosystematics and the biosphere, and discuss the ethical, legal and social (ELSI) issues.

Subjects:

1. What is biodiversity
2. Biodiversity ethics
3. Deforestation
4. Ways of valuing biodiversity and views of life
5. Ecotourism
6. Community engagement methods related to mining
7. Energy production
8. Bioremediation and clean-up of polluted sites
9. Water Ethics



Conflict Resolution, Peace-making and Justice in Global Understanding (CRPJ) (3 credit hours)

The **purpose** of this course is to explore the linkages between conflict resolution, peace-making and justice as vehicles for greater global understanding.

The **objectives** of this course are to introduce conflict resolution, peace-making and justice in global understanding.

Subjects:

1. Peace
2. Conflict
3. Inter-religious dialogue
4. Inter-cultural concepts
5. Philosophical foundations
6. Conflict resolution
7. Peace-making
8. Justice
9. Human rights
10. Global understanding
11. Sanctions
12. Bioethical traditions
13. Community engagement
14. Environmental disputes

Core Concepts in Bioethics & Cultural Frameworks (CCBE) (3 credit hrs)

The **purpose** of this course is to provide the student with the foundations and principles of bioethics across the world. It introduces descriptive, prescriptive, interactive and practical bioethics, through the principles accepted in the Universal Declaration on Bioethics and Human Rights (including the UNESCO Core Curriculum in Bioethics). Some particular themes that see different policies between countries and over time will be introduced.

The **objectives** of this course is to show that bioethics is not about thinking that we can always find one correct solution to ethical problems. There can be different choices made after ethical reflection, and different people make different decisions. Fundamental ethical principles can aid decision-making. Bioethics is learning how to balance different benefits, risks and duties, and to live in consensus with others of different moral conclusions.

Subjects:

1. Making choices, diversity and bioethics
2. Ethics in history and love of life
3. Moral agents
4. Ethical limits of animal use
5. Autonomy, patients' rights and duties
6. Theories in bioethics
7. Doctor-patient relationships
8. Medical ethics



9. Informed consent and informed choice
10. Justice and love of others; rights to health care and distribution of health care resources
11. Medical ethics, culture and health
12. Bioethics of love of life
13. Definition of death
14. Organ procurement and transplantation
15. Ethical issues in medical research, Ethics committees
16. History of Bioethics
17. Justice, culture
18. Confidentiality
19. Initiation and termination of medical treatment
20. Telling the Truth about Terminal Cancer
21. Euthanasia, End-of-life care
22. Ethics of Infertility and assisted reproductive technologies
23. Universal Declaration on the Bioethics and Human Rights
24. Neurosciences

Disaster Resilience (DISR) (3 credit hours)

The **purpose** of this course is to provide an overview of disaster resilience.

The **objectives** of this course are to help students to understand all aspects of disaster resilience.

Subjects:

1. Disasters over time
2. Volcanology and tectonic plate theory
3. Climate related disasters
4. Sendai Framework for Disaster Resilience
5. Human causation
6. Sustainable development and SDGs
7. Disasters and art
8. Disasters in cinema
9. Traditional knowledge and disaster resilience
10. Community participation in disaster resilience

Global Public Health and Peace (GPHP) (2 credit hours)

The **purpose** of this course is to provide the student with the essential principles and foundations of global public health public and for the student to understand how those principles related to general public health and their relations to peace.

The **objective** of this course is to present to the student the concept of peace, international cooperation, disaster resilience, and how to measure a culture of peace and human dignity.

Subjects:

1. Dialogues on war and peace and human dignity
2. Hiroshima and the Culture of Peace
3. Peace and peace-keeping



4. Roles of United Nations and Millennium Development Goals (MDGs)
5. Maritime trade and peace
6. History and concepts of war and peace
7. Youth Peace Ambassadors
8. Youth as agents of change for peace
9. Peace and the brain
10. Peace and public health
11. Peace and culture
12. Culture of peace, human rights and human dignity
13. Spirituality and peace
14. Disasters and looking beyond them
15. The Global Peace Index

Indigenous Knowledge Systems in Health Care (IKSH) (3 credit hours)

The **purpose** of this course include to consolidate and enrich students' knowledge and skills in Indigenous Knowledge Systems (IKS)-based medical and health sciences; to examine misconceptions created and propagated by Eurocentricism on traditional medical and health care practices by inculcating knowledge and awareness among students and researchers of medical and health sciences on the efficacy of indigenous health care systems as knowledge systems on their own merit, i.e. with their own ways of knowing, knowledge production and value systems; and to prepare postgraduate students of medical and health sciences with a multi-inter-trans-disciplinary approach including involvement of indigenous knowledge holders and practitioners in research and curriculum delivery.

The **objectives** of this course include to promote knowledge and skills among students of medical and health sciences on the holistic approach of Indigenous Knowledge Systems (IKS) as a source of innovation that supports healthy families and sustainable livelihoods for communities; to empower students and researchers of medical and health care sciences with knowledge and skills of preserving indigenous knowledge to ensure that communities receive fair and sustained recognition and, where appropriate, financial remuneration for the use of their medical and health care-based knowledge.

Subjects:

1. Comparative histories and philosophies of indigenous medical and health care systems
2. Chinese Medical Knowledge
3. Indian Medical Knowledge
4. African Medical Knowledge
5. Pre-Western American Medical Knowledge
6. Nature and patterns of indigenous medical and health care systems
7. Indigenous Knowledge Systems research methodologies in medical and health care
8. Gender Issues in indigenous medical and health care systems
9. Comparative indigenous communication systems in medicine and health care
10. National and international policies on traditional medicine and health care



11. Intellectual property rights and traditional medicine
12. Concepts of equity and justice in traditional medicine and health care
13. Bioethical implications of traditional medicine and health care

Indigenous Traditions and Bioethics (INTB) (3 credit hours)

The **purpose** of this course is to provide the student with an understanding of some of the thousands of indigenous traditions and their perspectives of bioethics.

The **objective** of this course is to present to the student as much of an essence that can be transmitted in a learning environment some of the wisdom of indigenous traditions.

Subjects:

1. What it means to be indigenous today?
2. Examples of colonization in past centuries
3. Survey of world views and cosmologies of different tribal communities
4. Biodiversity and oneness
5. Traditional healthcare and medical practice
6. Indigenous ways of knowing
7. Field work and project
8. Art and music around the world
9. Fusion cultures and mundialization
10. Language and moral reasoning

Public Health Law, Ethics and Policy Analysis (PHLE) (3 credit hours)

The **purpose** of this course is to present the student the essential principles of public health law, public health ethics, and health policy, and for the student to understand their critical nature and application in general public health.

The **objective** of this course is to present to the student a general framework of public law, ethics and health policy analysis, and to understand the integration of both public health issues and the law into policy making.

Subjects:

1. Introduction to public health law, ethics and policy analysis
2. Bioethics across cultures and religions
3. Health care system
4. Pharmaceutical ethics
5. Education of bioethics and public health law ethics
6. Health law and the legal system
7. Patient consent
8. Tropical disease burden and community engagement, e.g. Vector control
9. Infectious disease and professional responsibility to care; Employee rights and responsibilities
10. Organ distribution
11. End of life care
12. Disaster medicine and ethics
13. Mental health ethics
14. Eugenics and Social Darwinism abuses



15. Indigenous bioethics
16. Islamic bioethics
17. Conflict of Interest
18. Patient abuses in research and patient protection
19. Specialty medical ethics
20. Ethics and public health
21. Health Care Ethics Committee dilemmas

The detailed description of all courses is in the AUSN Catalog.

Additional Information

Contact Us

Additional information, including resources for application to the MS program, is available at www.ausovereignnations.org. Applications to all academic degree and educational certificate programs at AUSN are completed online and reviewed a rolling basis. Please direct any questions, concerns, or suggestions to Dr. Darryl Macer, Provost at provost@ausovereignnations.org.

Nondiscrimination Policies

It is the policy of the American University of Sovereign Nations (AUSN), in accordance with applicable international and domestic laws, to not discriminate on the basis of race, color, national origin, citizenship, age, sex, physical or mental disability, medical condition, religion, marital status, sexual orientation, gender identity, parental status, or veteran status. AUSN has adopted a racially nondiscriminatory policy as to student admissions, student scholarships, academic degree programs, and educational certificate programs. The nondiscrimination policies of AUSN cover admission and access to all University programs, events, and scholarships.