M.S. IN CLIMATE AND HEALTH

Master of Science in Climate and Health

The Master of Science in Climate and Health (MSCH) degree is offered in partnership with the Department of Public Health Sciences (Miller School of Medicine) and the Department of Atmospheric Sciences (Rosenstiel School of Marine and Atmospheric Sciences). The MSCH program will prepare future generations of professionals, research analysts, planners, decision-makers and leaders, who will have a deep understanding of the intricate relationship between human health and climate change, weather and weather anomalies ($C^2W^2$), and the ability to decipher and quantify this relationship at multiple scales ranging from gene-expression, to individual’s susceptibility to community response to region-wide morbidity and mortality burden.

The MSCH program has three specific aims. First, to provide students with conceptual, theoretical and applied understanding of the direct and indirect impacts of $C^2W^2$ on human health. Second, to train students in understanding, evaluating, and assessing short- and long-term climate and weather changes, and their direct and indirect impact on disease and disability burden across different communities. And third, to prepare students to develop adaptation, mitigation, healthcare and communication strategies in the light of adaptation and infrastructure capacity of different communities to manage the health effects of $C^2W^2$.

The degree offers the following MSCH tracks. Students must choose a track with approval from their academic advisor:

- Public Health Sciences
- Marine and Atmospheric Sciences
- Climate and Health - Analytical
- Toxicology

Admission Requirements

- **Application** - Applicants must submit their application online through SOPHAS (https://sophas.org/), the centralized application service of the Association of Schools and Programs of Public Health (ASPPH) (https://www.aspph.org/). All application materials, including transcripts, test scores, statement of purpose/personal statement, resume/CV, and letters of recommendations, must be submitted directly through SOPHAS.

- **Transcripts** – Applicants must submit official transcripts from all previously attended colleges and universities. All foreign transcripts must be official and submitted in the original language. If the original language is not English, an official translation must be submitted along with the transcript. We do not accept evaluations from foreign credentialed service organizations. All non-U.S. transcripts must be evaluated by the World Education Service (https://www.wes.org/) (WES) using ICAP course-by-course evaluation service.

- **Standardized Test Scores** - The Graduate Record Exam (GRE) is not required for the Master of Science in Climate and Health degree program.

- **English Proficiency Exam** - International students whose native language is not English and/or did not graduate from an English-teaching institution are required to submit TOEFL (https://www.ets.org/toefl/) or IELTS (https://www.ielts.org/en-us/) scores.

- **Resume/Curriculum Vitae** – Applicants must include a detailed resume including employment, public health experiences, community service, research, and academic or professional honors.

- **Statement of Purpose/Personal Statement** – Applicants are required to submit a statement of purpose that details their academic interest in the program. The statement should discuss any experiences in public health including field experience, research, training, education or other related qualifications. Applicants should discuss how earning the degree will contribute to their future professional and career goals, as well as to the future of public health. Applicants should also address any academic deficiencies, if applicable.

- **Letters of Recommendation** – Applicants must provide three letters of recommendation from individuals who are best able to assess their ability to be successful in a graduate degree program. Ideally, recommenders are recent professors, researchers or employers in a related field. Letters must be signed and on letterhead. Applicants will be asked to include the contact information of their recommenders on the SOPHAS application and recommenders will be sent an online form to complete via email.

For more information about our application process, please click here (https://graduestudies.publichealth.med.miami.edu/admissions/application-process/). To obtain detailed curricula on all our program offerings, please visit our website (http://publichealth.med.miami.edu/).

For further information, please contact:

Andria L. Williams, MBA
Director of Admissions
Department of Public Health Sciences
University of Miami Miller School of Medicine
1120 N.W. 14 Street, Room 905 (R-669)
Miami, Florida 33136
## Curriculum Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td><strong>Core Courses</strong></td>
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</tr>
<tr>
<td>EPH 600</td>
<td>Introduction to the Science Practice of Public Health</td>
<td>3</td>
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<tr>
<td>EPH 646</td>
<td>Climate and Health</td>
<td>3</td>
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<tr>
<td>EPH 657</td>
<td>Toxicology: Climate and Health</td>
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<tr>
<td>ATM 614</td>
<td>Introduction to Weather and Climate</td>
<td>3</td>
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<tr>
<td>EPH 727</td>
<td>Climate, Environment, and Health: Data Integration and Management</td>
<td>3</td>
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<tr>
<td>EPH 633</td>
<td>Policy Management of the Health Effects of Climate</td>
<td>3</td>
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<tr>
<td>EPH 658</td>
<td>Analysis of the Health Effects of Climate</td>
<td>3</td>
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<tr>
<td><strong>Track Coursework</strong></td>
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Students must complete one track.

### Public Health Sciences Track

Select from the following:

- ATM 634: Introduction to Atmospheric Chemistry
- ATM 637 or MPO 637 or OCE 637: Natural Hazards: Atmosphere and Ocean
- ATM 653: Climate Change
- BST 630: Longitudinal and Multilevel Data
- ECO 645: Regulations Economics
- EPH 612: Global Health
- EPH 639: Ecology and Control of Vector-Borne Diseases
- EPH 640: Urban Environment and Public Health
- EPH 641: Environmental Health
- EPH 643: Introduction to Occupational Health
- EPH 724: Molecular and Genetic Epidemiology
- LAW 213: Environmental Law
- LAW 555: Climate Change Law and Policy
- LAW 854: Environmental Justice Clinic Practicum I

### Marine and Atmospheric Science Track

Select from the following:

- ATM 624: Applied Data Analysis
- ATM 634: Introduction to Atmospheric Chemistry
- ATM 636: Hurricanes
- ATM 637 or MPO 637 or OCE 637: Natural Hazards: Atmosphere and Ocean
- ATM 653: Climate Change
- ATM 654: Climate Variability
- ATM 662: Advanced Weather Forecasting
- ATM 731: Air-Sea Interaction
- ATM 732: Climate Dynamics
- ATM 765: General Circulation of the Atmosphere

### Climate and Health--Analytical Track

Select from the following:

- ATM 653: Climate Change
- BST 605: Statistical Principles of Clinical Trials
**Plan of Study**

This is a sample plan of study. Your actual course sequence may vary depending on your previous academic experience as well as current course offerings. Students should meet with their academic advisor each semester to determine the appropriate course selection.

The degree offers the following MSCH tracks. Students must choose a track with approval from their academic advisor:

- Public Health Sciences
- Marine and Atmospheric Science
- Climate and Health - Analytical
- Toxicology

### Year One

<table>
<thead>
<tr>
<th>Semester</th>
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<th>Course Title</th>
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<tbody>
<tr>
<td>Fall</td>
<td>EPH 646</td>
<td>Climate and Health</td>
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<td></td>
<td>EPH 600</td>
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<td>Spring</td>
<td>ATM 614</td>
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<td>EPH 727</td>
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<td><strong>Credit Hours</strong></td>
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### Year Two

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<tr>
<td>Fall</td>
<td>EPH 658</td>
<td>Analysis of the Health Effects of Climate</td>
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<td>EPH 698</td>
<td>MSPH Thesis Proposal</td>
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Mission
As global warming intensifies, not only will it result in a shifting burden of disease and disability, but it will also result in unprecedented changes in the physical and biochemical characteristics of the environment. The MSCH graduate program will prepare future generations of research analysts, planners, decision-makers and leaders who will have deep understanding of the intricate relationship between climate and health, and ability to decipher this relationship.

Goals
The MSCH program has three specific aims:

• Provide students conceptual and theoretical understanding of the direct and indirect impacts of short- and long-term climate changes on health and well-being;
• Train students in evaluating and assessing short- and long-term climate changes and their direct impact, in turn, on the burden of disease and disability, and indirect impact on burden of disease and disability through the physical and biochemical changes in the environmental characteristics due to climate changes, and
• Prepare students to evaluate (existing) and develop adaptation, mitigation, communication and healthcare strategies to manage the health effect of C2W2 across different populations with respect to their differential health risks, infrastructure and adaptation capacity.

Student Learning Outcomes
Upon completion of the Master of Science in Climate and Health (MSCH) degree, all graduates will be able to:

• Understand the basic physical processes that control global and regional climate, and global and regional weather patterns and extreme weather patterns;
• Understand the interplay between health and C2W2, the burden of disease/disability different communities and populations associated with weather and climate, and weather and climate mediated changes in the environment;
• Understand the bio-physiological responses with respect to short- and long-term climate changes and weather patterns;
• Develop skills in collecting, managing and analyzing health, climate and associated data sets to quantify the health effects of climate incorporating hierarchical (including individual, community and region-specific) socio-physical environmental characteristics;
• Understand the structure and administration of public health organizations and the policies that impact health programs and health services for different communities, and identify direct and indirect roles of different stakeholders in the surveillance and management of the health effects of climate, and develop skills in evaluating the role strategies to reduce greenhouse gas emissions and associated health effects; and
• Understand disparities in the health outcomes in communities and the attribution of climate change effects on vulnerable populations, and individual responses (from various socio-economic backgrounds) to different warning and surveillance of weather conditions that pose threat to health and well-being.