**GENERAL INFORMATION**

**Program sponsor:** Princeton Environmental Institute

**Position number:** U1ADR2

**Project title:** Storm Surge Barriers and NYC

**Organization/research group:** Princeton University Resilient City Lab

**Primary location(s) of internship:** Princeton University

**Additional cities and/or countries to be visited (if applicable):** n/a

**Note:** If this internship is located in a country with an International SOS risk rating of High or Extreme, final candidates must participate in a travel review process overseen by the Travel Oversight Group (TOG), and obtain safety guidance prior to departure. The University reserves the right to revoke support and funding for travel at any time there has been a significant deterioration in the safety and security conditions surrounding travel arrangements, or in the sector of the country, or countries, where travel is to occur.

**FACULTY SPONSOR(s)/HOST INFORMATION**

**Name(s):** Sigrid Adriaenssens

**University Department(s):** Civil and Environmental Engineering

**E-mail:** sadriaen@princeton.edu

**Website:** http://formfindinglab.princeton.edu/

**INTERNSHIP/RESEARCH PROJECT INFORMATION**

**Internship/project description:**

Cities are centers for innovation and offer economic and social opportunities. They are complex, dynamic metasystems where technical, economic and social networks intersect. Because the vulnerability of these intersecting systems cannot be completely predicted, cities are also hotspots for disasters caused by climate change, energy scarcity, growing urban populations and manmade and natural catastrophes. In the face of this unpredictability, we want cities to be resilient and able to prepare, respond to and recover from significant multi-hazard threats with a minimum of damage to public safety, health, economy and security. Under uncommon stress, people and property have proven to fare better in resilient cities. The overall goal of this internship is to collect and analyze data to be used in a community-level framework for studying extreme event scenarios in cities taking into account infrastructure and social dependencies. This year the focus will be on New York City.

**Student's role and responsibilities:**

The work involves collecting data related to (1) past storm surges, and (2) identification of suitable location of a novel type of storm surge barriers for the NYC area. To predict future storm surges, historical measurements of water levels and waves as well as current coastal and topographic data are needed. This information will assist in making a basin scale wave and storm model, needed to evaluate the potential of novel coastal defense structures. To assess the suitability of location of future storm surge barriers, spatial data need to be collected and mapped about flood levels, location of population density, critical infrastructure, environmental protected areas, socio-economic data. These data will aid in making an economic cost/benefit analysis for the novel proposed barrier. The work will be limited to a specific area in NYC.

To extract these data, the student will need to use common sense and analytic skills to decide if the information is accurate, fix errors, track down additional info, etc. The work will be done in archives and/or libraries with newspaper clippings, on-line (coastal and topographic data), but also in person through physical observations, and interviews with NYC city planners and Army Corps of Engineers.
Internship/project learning objectives:
- extract, organize and filter data into suitable formats,
- digital mapping,
- develop interview questions,
- carry out interviews and interpret results

PROGRAM REQUIREMENTS

Academic background and any course pre-requisites:
architecture, civil engineering major, or woodrow wilson major preferred

Technical skills:
none

Additional training(s):
none

Equipment:
student must bring laptop

Physical demands:
none

Language abilities/competencies: n/a

Additional information about the internship/project:
none

INTERNATIONAL TRAVEL REQUIREMENTS (if applicable)

Visa(s) required? Yes ☐ No ☐
Research permit/pass required? Yes ☐ No ☐
Immunizations required? Yes ☐ No ☐

INTERNISHIP/PROJECT SUPERVISOR(S)

Name and title of primary supervisor: Sigrid Adriaenssens
Email: sadriaen@princeton.edu  Phone: 609 258 4661

Name and title of additional supervisor, if applicable: n/a
E-mail:  Phone:

PROGRAM DATES AND FUNDING INFORMATION

Weekly Stipend: $500  Number of Positions Available: 1
Tentative Start Date (mm/dd/yyyy): 05/27/2018  Number of Weeks: 8
Tentative End Date (mm/dd/yyyy): 07/19/2018  Note: PEI funding is for full-time work, 35 hours per week minimum, and for a period of at least 8 continuous weeks.

Application Deadline: January 11, 2019