THE STEINHARDT museum of natural history
ISRAEL NATIONAL CENTER FOR BIODIVERSITY STUDIES

ISRAEL CENTER for CITIZEN SCIENCE
המרכז הישראלי למדע אזרחי
المركز الإسرائيلي العلوم المدنية

Tel Aviv University
12 Klausner St., POB 39040
Tel Aviv, 6139001 • Israel
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From Theory Practice - Citizen Science for Ecologists

Course number - 1885 0107

Dr. Corey T. Callaghan, Dr. Yaela Golumbic

Semester Break, 1-5/2, Sun-Thu 9:00-16:00

Course Overview:
This immersive, week-long course introduces students to the field of citizen (community) science with a strong focus on ecological research applications. Through a balance of core concepts, group collaboration, field activities, and digital tools, students will explore how public participation contributes to ecological data collection, how data is analyzed and interpreted, and how inclusive, effective projects are designed. The course culminates in a group final project that includes both a short written summary and a formal presentation.

Day 1 – Foundations of Community Science
Theme: Introduction, Key Concepts, and Field Experience

- Introduction to Community Science – Definitions, History, and Applications
- Mapping the community science landscape (e.g., iNaturalist, eBird)
- How citizen science has contributed to ecological research
- Who participates and why?
- Introduction to biodiversity data collection using iNaturalist

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Day 2 – Designing Community Science Projects
Theme: Participation Dynamics and Project Development

- Introducing the Israel Center for Citizen Science
- Group formation and development of new project idea
- Guided design session & mentoring, project presentation
- The Psychology of Participation – Motivations, Barriers, and brief introductions to relevant theories
- Models of community science (contributory, collaborative, co-created) and their effect on data outcomes and inclusivity

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- **After hours** – teams finalize draft project description

Day 3 – Bias and Data Challenges in Community Science

Theme: Understanding and Mitigating Bias in Data Collection

- Observational and spatial bias in community science data
- Socio-ecological implications of biased data
- What types of questions can (and can't) be answered with community science?
- Bias mitigation strategies
- Interactive Workshop: Downloading, filtering, and visualizing community science data, spatial and temporal filtering, metadata, and Research Grade observations

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Day 4 – Data Analysis and Interpretation

Theme: From Observations to Ecological Insights

- Analysis strategies and challenges with community science data
- Exploratory data analysis using iNaturalist or eBird datasets
- Group workshop session with instructor guidance
- How to translate data into findings? Preparing figures and early results
- Peer and instructor feedback + Project refinement: Emphasis on feasibility and communication
- **After hours** - Teams prepare final presentation

Day 5 – Presentation, Reflection, and Future Directions

Theme: Sharing Outcomes and Synthesis

- **Half-Day Field Trip**: Field-based biodiversity sampling or mini-bioblitz
    - Goal: Apply concepts of participatory design and public engagement
    - Field discussion: Inclusion, accessibility, and platform-specific challenges
- **Final Group Presentations** (10 minutes + 5-minute Q&A per group)
- Instructor + peer feedback
- The future of community science in ecological research
- Course wrap-up and evaluations

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Final Assignment:

1. Each group will submit:

   (1) A 2–3 page written project summary outlining research questions, audience, methods, challenges, and reflections
   (2) A final in-class presentation on the last day
2. Individual report on bioblitz including analysis of data collected and summary of key findings and contributions