

CALL FOR PAPER PROPOSALS
Proposal Submission Deadline: February 28, 2023
<http://codee.org/>

Engaging the World: Differential Equations Influence Public Policy

A 2023 Special Issue of the CODEE Online Journal
Edited by Samer Habre of the CODEE Editorial Board

The CODEE online Journal, a peer-reviewed, open-access publication, publishes new materials promoting the teaching and learning of ordinary differential equations. After the success of previous Special Issues of the CODEE Journal, *Linking Differential Equations to Social Justice and Environmental Concerns* (Vol. 12, 2018) and *Engaging Learners: Differential Equations in Today's World* (Vol. 14, 2020), CODEE is seeking submissions for a 2023 Special Issue with a theme that extends these ideas to the possibilities of influencing public policy.

Public policy is important because it provides structures and strategies by which our society can work to address and resolve some of the current social, economic, environmental, public health, educational, behavioral, and other issues. Mathematical modeling of real-life systems through differential equations can help in understanding how systems in our society operate and can provide guidance in problem-solving and analyzing the effectiveness of public policies that govern society's response to issues. For the CODEE 2023 Special Issue, we reflect on questions such as:

“How do we describe public policies quantitatively, and embed these descriptions into differential equations?”

“How do we measure the effectiveness or adjust public policies to fit a desired purpose?”

“How do we develop mathematical fluency among our students when discussing mathematics and public policy?”

We seek papers that would appeal to mathematics educators and students, in which differential equations are applied to problems affecting our global society.

Objective of the Special Issue

Differential equations can predict future behaviors and show the effect of varying parameters. Models in **Economics, Management of Resources, Epidemiology, Cognition and Learning, Public Health, and Climate Change**, among others, can benefit from a thorough investigation using ordinary differential equations. Results can influence public policies of government and non-governmental agencies. This issue of CODEE invites educators to share their research findings in these areas. Students are also encouraged to send proposals; undergraduate research is often a key to engaging learners in issues that matter to the real world.

Submission Procedure

Researchers and practitioners are invited to submit on (or before) February 28, 2023 the following: a title, a detailed abstract of their proposed paper (maximum of 500 words), a short list of main references, and a brief description of authors. Authors will be notified by March 28, 2023 if their proposals are accepted. Full papers are expected to be submitted by June 6, 2023. All submitted papers will be reviewed on a double-blind review basis. Inquiries and submissions should be sent **electronically** to Dr. Samer Habre, shabre@lau.edu.lb or special_issue@codee.org.

Important Dates

Deadline to submit proposal	28 February 2023
Notification of acceptance	28 March 2023
Full paper submission	6 June 2023
Review results returned to authors	25 July 2023
Revised manuscript due	22 August 2023
Target date for online publication	1 December 2023

Some Source Ideas for the 2023 Special Issue of the CODEE Journal
Engaging the World: Differential Equations Influence Public Policy

An online search for “global issues” revealed many lists, e.g., the Borgen Project’s “Top Ten”:

- Climate Change
- Pollution
- Violence
- Security and Well Being
- Lack of Education
- Unemployment (and Poverty)
- Government Corruption
- Malnourishment and Hunger
- Substance Abuse
- Terrorism

Sample recent relevant news headlines:

Cornell University Lab of Ornithology, September 19, 2019

[An alarming loss of 1 in 4 North American birds since 1970](#)

Using annual bird count days, radar data, cloud-based computing, and machine learning, researchers have documented contributing effects such as window collisions and light pollution. In some locations, city managers consider the question, “When should we turn off the lights in order to protect our birds?”

Associated Press, February 11, 2020

[UN warns of ‘major shock’ as Africa locust outbreak spreads](#)

In East Africa, billions of locusts are destroying crops, and spreading to other countries, to an extent not seen in seventy years.

World Economic Forum 2020 Global Risks Report

[Health systems under new pressures](#)

Health systems around the world are at risk of becoming unfit for purpose. As existing health risks resurge and new ones emerge, humanity’s past successes in overcoming health challenges are no guarantee of future results.

Business Insider, October 20, 2021

[Millions of sidelined workers won't come back unless the math makes sense to them](#)

As a result of the pandemic, there were roughly six million people in 2021 who were out of job but were not making efforts to look for one. How should business and community leaders get them out of the sidelines and into the workforce?

Nature, October 25, 2022

[The associations between stunting and wasting at 12 months of age and developmental milestones delays in a cohort of Cambodian children](#)

Malnutrition and hunger among children less than five years of age still haunts our global society. Statistical data show that there is a correlation between non-achievement of motor and cognitive milestones and malnourishment. How can we use differential equations to model the effectivity of existing nutritional programs in addressing this societal problem?

NOAA Fisheries News, November 15, 2022

[Predicting winners and losers in a warming Arctic](#)

Research is necessary to understand the effects of climate change in transforming our marine ecosystems.

BBC UK, November 15, 2022

[How many migrants cross the English Channel in small boats?](#)

Some European countries are updating their immigration policies due to recent active movement of people across the English Channel in small boats.