



The Learning and Teaching of Calculus Across Disciplines

5-9 June 2023

Bergen, Norway

<https://matriccalconf2.sciencesconf.org/>

First Announcement

How do biologists, chemists, economists, engineers, and physicists understand and use concepts in their disciplines that can be supported or developed in calculus courses? What does this imply for teaching and learning calculus in these disciplines?

*This conference seeks to explore these issues
by bringing specialists from these disciplines together with mathematics educators.*

In what ways might ideas within calculus or its foundations form part of the culture of thought in biology, chemistry, economics, engineering, and physics? How might ideas in calculus be important in these disciplines and their workplace practices? How do experts in these disciplines think with fundamental calculus ideas such as rate of change, accumulation, and differentials? Are there connections and parallels between the ways in which experts think about processes of change in these disciplines? For what practices in these disciplines might calculus be relevant and how should this impact the teaching and learning of calculus in, and for, these disciplines? How do those who teach mathematics to students in these disciplines need to rethink calculus so as to make it relevant to these processes and ways of thinking?

The conference will last five days. It will include plenary activities in which experts from biology, chemistry, economics, engineering, and physics education present the needs of their discipline, in interaction with mathematics educators. These plenary activities will take place during the first part of the conference. Participants will then attend presentations of contributed papers and work in discussion groups that focus on mathematical ideas with relevance across disciplines. These may include rate of change, accumulation, quantitative reasoning (especially quantification), modelling, use of units and meanings of variables, limits, differentials and more. Discussion group themes will be agreed on later and be influenced by the papers submitted by participants.

On the final day, participants will focus on achieving the two main aims of the conference:

1. To generate recommendations about the calculus curriculum and about teaching calculus to biology, chemistry, economics, engineering, and physics students that are at the same time relevant and conceptually robust.
2. To define aims for (further) research in the area that is needed to achieve (1) and establish research collaborations accordingly.

Participants will be expected to attend all five days of the conference. We therefore recommend that participants arrange arrival by Sunday 4 June 2023 and departure from Saturday 10 June.

Bergen tends to be very busy at that time of the year and we recommend booking early. The Zander K hotel has been chosen for the conference by the local organizing committee. Conference participants are entitled to a reduced hotel price by using the code **RAB10** when booking at <https://www.zanderk.no/en/>.

This conference is supported by [MatRIC](#), the Centre for Research, Innovation and Coordination of Mathematics Teaching. MatRIC is a Centre for Excellence in Higher Education based at the University in Agder, Norway, and its financial support means that services and hospitality towards the conference will be provided without the need to charge a conference fee.

Furthermore, the conference organisers offer some limited financial support for participants whose paper has been accepted but who do not have the means to attend. If this is your case, you may contact Lillian Egelandssaa; lillian.egelandssaa@uia.no by 31 March 2023.

Participants from Norwegian higher education institutions will be able to apply to MatRIC to cover accommodation expenses.