



TSG 13

TEACHING AND LEARNING OF CALCULUS

The Organizing Team

Chair: David Bressoud, Macalester College, USA

Cochair: Kristina Juter, Kristianstad University, Sweden

Members:

Armando Cuevas, Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional (CINVESTAV), Mexico

Elizabeth Montoya, Pontificia Universidad Católica de Valparaíso, Chile

Xuefen Gao, Zhejiang Sci-Tech University, China

This Topic Study Group will seek contributions on research and development in the teaching and learning of Calculus, both at upper secondary and tertiary level. Contributions will account for advances, new trends, and important work done in recent years on the teaching and learning processes of Calculus. These can include:

- Introducing and building basic concepts of Calculus in upper secondary education,
- Meeting the challenges of teaching and learning Calculus and Analysis at universities and through online courses,
- Teaching and learning of Calculus for special audiences (*e.g.* professional training, engineering, life sciences),
- Use of technology in the teaching and learning of Calculus, including online courses,
- The role of visualisation in the teaching and learning of Calculus,
- Analysis of textbooks concerning the presentation of the concepts of Calculus and Analysis,
- Easing the transition between secondary and tertiary education in the teaching and learning of Calculus, and between Calculus and Analysis at the tertiary level,
- Theoretical approaches to study the phenomena related to the teaching and learning of Calculus.

Contributions can also describe theoretical or pragmatic research into effective practices for the teaching and learning of key concepts of Calculus such as co-variation of functions, limits, continuity, differentiation, integration, or the Fundamental Theorem of Calculus, among others.