

Julia Goedecke

Address: 9 Repington Row
Leicester LE2 6PA

Email: julia.goedecke@cantab.net
Tel: (+44) 07895253348

Nationality: German, British

Website: www.julia-goedecke.de

Current and former positions

- Sept 2017 – present **Teaching Fellow in Mathematics** at University of Leicester
- Oct 2013 – Sep 2017 **College Lecturer in Mathematics** at Newnham College, taking role of Director of Studies in Mathematics; and **Graduate Education Officer** at Department of Pure Mathematics and Mathematical Statistics (DPMMS), University of Cambridge; and
- Oct 2015 – Sep 2017 **Affiliated Lecturer** at DPMMS.
- Jan 2011 – Sep 2013 **College Lecturer in Mathematics** at Queens' College, University of Cambridge; Assistant Director of Studies from Oct 2011.
- Jan 2010 – Dec 2010 **Postdoctoral Researcher** at Université catholique de Louvain
Funded by Fonds National de la Recherche Scientifique (FNRS), Belgium.

Education

- Oct 2006 – Nov 2009 **PhD in Mathematics**
University of Cambridge, funded by EPSRC
Thesis: “Three Viewpoints on Semi-Abelian Homology”
Research supervisor: Prof. Peter Johnstone
- Oct 2005 – Jun 2006 **Master of Mathematics** (with distinction)
Formerly Certificate of Advanced Studies in Mathematics (Part III)
Emmanuel College, University of Cambridge
Essay title: “Locale Theory: Using Locales to prove Tychonoff’s Theorem”
- Oct 2002 – Jul 2005 **BA honours degree in Mathematics**
Emmanuel College, University of Cambridge
Part IA: upper second class, Part IB: first class, Part II: upper second class

Publications

Relative Mal'tsev categories

Tomas Everaert, Julia Goedecke, Tamar Janelidze-Gray and Tim Van der Linden
Theory and Applications of Categories 28 (2013) No. 29, 1002–1021.

The fundamental group functor as a Kan extension

Tomas Everaert, Julia Goedecke and Tim Van der Linden
Cah. Topol. Géom. Différ. Catég. LIV (2013), 184–210.

Resolutions, Higher Extensions and the Relative Mal'tsev Axiom

Tomas Everaert, Julia Goedecke and Tim Van der Linden
J. Algebra 371 (2012) 132–155.

Homology in relative semi-abelian categories

Julia Goedecke
Applied Categorical Structures 21 (2012), No. 6 523–543.

Relative Goursat Categories

Julia Goedecke and Tamar Janelidze
J. Pure Appl. Alg. 216 (2012) 1726–1733.

On Satellites in Semi-Abelian Categories: Homology without Projectives

Julia Goedecke and Tim Van der Linden
Math. Proc. Cam. Phil. Soc. 147 (2009) No. 3, 629–657.

A Comparison Theorem for Simplicial Resolutions

Julia Goedecke and Tim Van der Linden
Journal of Homotopy and Related Structures 2 (2007) No. 1, 109–126.

Teaching

- 2020 – present **Fellow of The Higher Education Academy**
in recognition of attainment against the UK Professional Standards Framework for teaching and learning support in higher education.
- 2017 – present **First Year Lecturer**, University of Leicester
Lecturing and examining first year courses Linear Algebra, Plane Geometry Elements of Number Theory, for cohort of 40 - 150 students, including small-group problem classes.
- 2017 – present **Trainer for Small-Group Teaching**, University of Leicester
Training PhD and undergrad students in teaching skills for problem classes, through training sessions, shadowing scheme and individual coaching.
- 2018 – present **Developer of Introductory Material**, University of Leicester
Developing material to help students with the transition from school to University maths.
- 2014 – 2017 **Lecturer: Groups**, University of Cambridge
Lecturing the Groups course to ca. 250 first-years of the Mathematical Tripos, setting example sheets, writing a course blog, providing resources on Moodle.
- 2011 – 2014 **Lecturer: Category Theory**, University of Cambridge
Lecturing and examining the Category Theory course (master's level).
- 2006 – 2017 **Supervisor for Cambridge Mathematical Tripos**
Teaching undergraduates in pairs, parallel to their lecture courses, in several first- and second year courses in algebra and analysis.
- 2016 – 2017 **Instructor for Supervisor Training Workshop** in Mathematics, Cambridge
Co-leading “Supervising Effectively in Mathematics” workshop for new maths supervisors, introduced supervision demo and renewed format, which received good feedback.
- 2013 – 2017 **Instructor for Writing Workshop** in Mathematics, Cambridge
Running workshops for undergraduates to learn how to write mathematical solutions.
- 2013 – 2017 **Instructor for Introductory sessions** for first-years, Cambridge
Teaching a variety of maths topics, helping transition from school to university.
- 2015 – 2017 **Trainer for Lecturing** for PhD students, Cambridge
Training several PhD students in one-on-one sessions to give workshops to incoming master's students on background material for their course.

Academic responsibilities

- 2017 – present **Personal Tutor**, School of Mathematics and Actuarial Science (SMAS), Leicester
Tutoring groups of mathematics students and Foundation Year students, including individual meetings, academic and personal guidance, regular group meetings.
- 2018 – 2019 **Year 2 Tutor**, SMAS, University of Leicester
Delivering study skills training sessions to second year students, overview contact point for second year personal tutor system.
- 2017 – present **Member of Learning and Teaching Committee**, SMAS, University of Leicester
Committee oversees undergraduate and taught postgraduate provision of department, including quality standards and student feedback.
- 2012 – 2017 **Director of Studies in Mathematics**, Newnham College, Cambridge
Including running admissions process for mathematics.
Introduced “Widening Maths Horizons” series for all year-groups, with talks by undergrads, PhD students, academics and alumnae about use of maths in various different contexts.

- 2011 – 2013 **Director of Studies for IB Mathematics**, Queens' College, Cambridge
Including organisation and coordination of examples classes.
- 2010 – 2017 **Admissions Interviewer**, Mathematics
For several Cambridge Colleges, mainly Queens' College.
- 2016 – 2017 **Chair of Supervisor Support Working Party**, Intercollegiate, Cambridge
Looking at problems in supervisor recruitment and support;
improved training course and literature, trialling feedback survey on Part II
supervisions across colleges, building support platform for supervisors.
- 2013 – 2017 **Graduate Education Officer**, DPMMS, University of Cambridge
Overseeing and organising Researcher Development for PhD students and postdocs
as well as many support programmes for Part III students.
Introduced Supervision Good Practice and Mental Health Awareness workshops;
Office Hours for Part III students; "Part III Preparation Resources" website.
- 2013 – 2017 **Member of several committees**, Faculty of Mathematics, Cambridge
Including: key and active member of Part III Committee,
moulding the improvements envisaged for Part III;
Faculty Board; Athena SWAN Committee (May 2013 – Sep 2015).
- 2011 – 2016 **Organiser of Category Theory conferences and seminars**
Including weekend conferences PSSL93 (2012) and PSSL100 (2016);
week-long conference CT2014, the main conference of my field;
weekly local Category Theory seminar series (2011 – 2014);
Category Theory workshop at British Maths Colloquium (2015).
- 2008 – 2009 **Co-President of Cambridge University Graduate Mathematics Society**
(CUGMS) society organises social and academic events for its members,
including many which are considered Transferable Skills Training.
- 2007 – 2008 **Director of Part III Seminar Series**, Michaelmas and Lent Term
Organised two-day seminar series of 50 students giving talks to peers.

Outreach

- 2020 **Designer and Presenter of Virtual Workshop on Cryptography**
A "Covid-19 Special" workshop and Year 12 Project, to replace cancelled workshops
and summer schools. <https://1e.ac.uk/mathematics/outreach>
- 2020 **Mentor for in2science UK**
Promotes social mobility and diversity in science, technology, engineering and maths.
Mentored two groups of Year 12 students interested in studying maths or physics.
- 2018 – present **MEI Associate, Advanced Mathematics Support Programme (AMSP)**
Leading Year 13 problem classes and STEP classes which stretch A-level students;
providing mock interviews and advice for Oxbridge applications.
- 2013 – 2017 **Speaker for Undergraduate Maths Societies**, University of Cambridge
Including TMS (Feb 2013 and Feb 2014), Adam's Society (Feb 2016),
Emmy Noether Society (June 2016), Archimedean (Feb 2017).
- 2015 – 2017 **Presenter** at Oxford and Cambridge Student Conferences
Co-presenting maths subject talk at several outreach events around the UK,
informing audiences of up to 500 A-level students about degree options.
- 2016 – 2017 **Lecturer: Maths Masterclass** organised by Cambridge Admissions Office
Giving one of two 1h lectures to ca 300 A-level students on modular arithmetic
and cryptography; including individual question session afterwards.

- 2015 – 2017 **Lecturer: Sutton Trust Summer School**, Cambridge
Delivering part of Sutton Trust Summer School in Mathematics over 3 days, introducing 40 A-level students to university-level maths in interactive workshops.
- 2014 – 2016 **Academic Stream Instructor: Teach First Futures**, Cambridge
Co-delivered two day academic stream at Easter School organised by Teach First introducing 30 A-level students to university-level maths in interactive workshops.
- 2016 – 2017 **Instructor: RI Maths Masterclasses in Cambridgeshire**
Leading 2h interactive session for 24–30 bright and motivated 12-year-olds from around Cambridgeshire on modular arithmetic and cryptography.
- 2015 **Organiser, Instructor: Joan Clarke Maths Residential**, Newnham College
Developed idea and structure, organised and led a residential course to help female A-level students understand the opportunities in and differences between maths (pure and applied), physics, engineering, computer science and economics.
- 2012, 2013 **Course Instructor: Abstraction in Mathematics**, Germany
Taught course on introduction to abstract algebra to 16 talented school pupils aged 15–19, at a 16 day long summer school organised by Deutsche SchülerAkademie.

Training undertaken (selection)

- 2016 – 2017 **Teaching Associate Programme (TAP)**, University of Cambridge
Aimed to give accreditation as “Associate of the Higher Education Academy”; developing critical approaches to improving teaching practice through selected academic literature on teaching and learning in higher education and practical developmental activities.
- 2015 **Mental Health First Aid Lite**, Newnham College
Introduced common mental health problems, associated stigma, how to speak to/support people living with mental health problems, how to look after one’s own mental health.
- 2014 **Supporting Students in Distress: Boundaries and Boomerangs**
Provided a forum for attendees to confidentially discuss their reactions to students in emotional distress and consider effective ways of supporting them while managing their own boundaries; updated attendees on available sources of support for students.

Conferences, workshops and invited talks (selection)

- International Category Theory Conference (CT)**
Main Category Theory meeting lasting one week.
- Jul 2018 CT2018 Azores, Portugal
- Jul 2017 CT2017 Vancouver, Canada
Submitted talk *Hopf formulae for Tor*.
- Jun 2014 CT2014, Cambridge, UK
Main organiser.
- Jul 2013 CT 2013, Sydney, Australia
Plenary talk *The fundamental group functor as a Kan extension*.
- Jun 2010 CT 2010, Genoa, Italy
Plenary talk *Higher extensions and the relative Mal’tsev axiom*.
- Jun 2008 CT 2008, Calais, France
Presentation *On Satellites in Semi-Abelian Categories*.
- Jun 2007 CT 2007, Carvoeiro, Portugal
- Peripatetic Seminar on Sheaves and Logic (PSSL)**
European Category Theory meetings lasting 2–3 days.

- Sep 2017 PSSL 101, Leeds, UK
Presentation *Hopf Formulae for Tor*
- Apr 2016 PSSL 100, Cambridge, UK
Main organiser.
- Jan 2015 PSSL 97, Louvain-la-Neuve, Belgium
- Mar 2013 PSSL 94, Sheffield, UK
Presentation *The fundamental group functor as a Kan extension.*
- Apr 2012 PSSL 93, Cambridge, UK
Main organiser.
- Apr 2010 PSSL 90, Braunschweig, Germany
Presentation *Resolutions and higher extensions.*
- Apr 2009 PSSL 88, Cambridge, UK
Presentation *On Satellites in Semi-Abelian Categories.*
- Sep 2007 PSSL 86, Nancy, France
Presentation *A Comparison Theorem for Simplicial Resolutions.*
- Invited speaker** at European Universities
- Nov 2017 *Hopf Formulae for Tor*
Université catholique de Louvain, Belgium.
- Mar 2013 *The fundamental group functor as a Kan extension*
Université catholique de Louvain, Belgium.
- May 2009 *Satellites in Semi-Abelian Categories*
University of Coimbra, Portugal.
- Mar 2009 *Satellites in Semi-Abelian Categories*
Université catholique de Louvain, Belgium.
- Oct 2007 *A Comparison Theorem for Simplicial Resolutions*
Vrije Universiteit Brussel, Belgium.
- Nov 2010 **Séminaire Itinérant de Catégories (SIC), Calais, France**
French-speaking Category Theory meeting lasting one day.
Presentation *Relative Goursat Categories* in French.
- Sep 2011 **CatAlg2011** Gargnano, Italy
Workshop on Categorical Algebra: Recent developments and future perspectives.
- Apr 2009 **Young Researchers in Mathematics 2009**, Cambridge, UK
Presentation *Homology in Semi-Abelian Categories.*
- Dec 2007 **Graduate homotopy conference** Cambridge, UK
Presentation *A comparison theorem for simplicial resolutions.*