

Christina Anne Cobbold

Curriculum Vitae

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Date of Birth: 12th July 1975

Nationality: British

Degrees: Heriot-Watt University
PhD in Mathematical Biology Oct 1998 - Oct 2001
Thesis entitled: "Mathematical modelling of problems in human biology:
Dermal wound healing and atherosclerosis."
Supervised by Prof. Jonathan Sherratt.

University of Warwick
MSc in Mathematics Oct 1996 - Oct 1997
Dissertation entitled: "Th1/Th2 immune responses and the Hayflick
Limit." Supervised by Dr. Nigel Burroughs.

University of Warwick
BSc in Mathematics Oct 1993 - July 1996
First Class

Positions:

Sept. 2003 - Present Lecturer in Applied Mathematics, University of Glasgow.
June 2004 - Dec. 2004 Visiting researcher, Utah State University, USA.
Nov. 2001 - Sept. 2003 Postdoctoral Fellow with Prof. Mark Lewis
Centre for Mathematical Biology, Department of Mathematical and
Statistical Sciences, University of Alberta, Canada.
Supported by a PIMS Postdoctoral Fellowship award.

Continuing Professional Development:

Effective time management (2009), Web publishing for T4 (2007), Requisitioning (2007), Recruitment and Selection (2006), Postgraduate Supervisor Training (2006), Certificate in Academic Practice (2005) and LTSN Induction for New Lecturers (2003).

Grants:

- C.A.Cobbold: Biological invasions: Non-constant spread rates and dispersal in heterogeneous habitat. *Carnegie UK Trust*, (2009). **£2,480**.
- C.A.Cobbold, *Royal Society*, Travel award (2009). **£1,231**.
- *Landhal travel award* (2009). **\$US 300**.
- C.A.Cobbold: Can parasitoids slow or stop a wave of invading hosts?. *Nuffield Foundation Undergraduate Science Bursary*,(2008). **£1,400**.
- D. Monkton, C.A.Cobbold, D Wilcox, D Haydon: Dynamic DNA and human disease: Mathematical modelling to provide clinical prognoses in myotonic dystrophy. *Lord Kelvin-Smith Scholarship*, (2008-2012). **£76,000**.
- C.A.Cobbold, J.A.Powell: North American Incoming short visit. *Royal Society*, (2007). **£2,220**.
- C.A.Cobbold, J.A.Powell: *LMS* Small grants, scheme 2, (2007). **£600**.
- C.A.Cobbold, J.A.Powell: *EMS* Small grants, (2007). **£600**.
- C.A.Cobbold, D Haydon, D Barry, B Mable: Evolutionary dynamics of extreme genomic diversification. *Lord Kelvin-Smith Scholarship*, (2007-2011) **£76,000**.
- C.A.Cobbold *Institute for Advanced Study* Travel award.(2005) **£500** and 3 weeks subsistence.
- C.A.Cobbold: Research grant: Modelling temporal cycles in multi-consumer-resource systems in structured habitats. *Royal Society*, (2004). **£14,334**.
- C.A.Cobbold, *Royal Society*. Travel award (2004). **£770**.
- C.A.Cobbold Scientific meeting and visitor Prof J Gervais funds from the *Mathematical biomedical EPSRC network grant*. (2006). **£2,000**.
- *Landhal travel award* (2006 and 2002). **2 x \$US 500**.
- *European Society for Theoretical and Mathematical Biology* travel award (2002) **500 Euros**.

Research student supervision:

Erida Gjini: *Oct 2007*- PhD: “Evolutionary dynamics of extreme genomic diversification” (Kelvin Scholar)

Catherine Higham: *Sept 2008*- PhD: “Dynamic DNA and human disease: Mathematical modelling to provide clinical prognoses in myotonic dystrophy” (Kelvin Scholar)

Kathleen Cleary: *June - Aug 2008* Undergraduate summer research student: “Can parasitoids slow or stop a wave of invading hosts?” (Nuffield Foundation Science Bursary)

Service and administration:

Service:

- Grant proposal referee for the BBSRC (UK) and NSERC and MITACS (Canada).
- Technical editor for the Glasgow Mathematics Journal (2005-2007).
- External PhD examiner, Department of Mathematics, University of Dundee (Dec. 2006).
- Internal PhD examiner, Department of Civil Engineering, University of Glasgow (June 2007).
- Interview panel member for the Lord Kelvin postdoctoral fellowship, Civil Engineering (Nov. 2006).
- Interview panel member for the Wellcome Trust 5-year postdoctoral fellowship, Veterinary Medicine (Nov. 2007).
- Co-opted committee member of the Centre for Mathematics Applied to the Life Sciences.
- Organiser of the Mathematical Biology Group Meetings, Sept. 2003-Jan. 2007.
- Co-wrote the Mathematical Biology Research webpage:
<http://www.gla.ac.uk/departments/mathematics/research/biology/>.
- Wrote and re-designed the Centre for Mathematics Applied to the Life Sciences webpage:
<http://www.gla.ac.uk/cmals>
- Local contact for the Centre for Mathematics Applied to the Life Sciences seminar.

Administration:

- Head of Level 3 Honours Mathematics, 2006-2009
- Member of the Teaching Committee, 2005 - 2009
- Editor of the Non-Honours booklet, 2003-2006
- Member of the Faculty Ethics Committee, 2007-2009
- Speaker at the FIMS induction event, 2005-2009

Journal referee for:

Journal of Theoretical Medicine, Theoretical Population Biology, Journal of Mathematical Biology, Journal of Theoretical Biology, Bulletin for Mathematical Biology, Proceeding of the Royal Society Series B, American Naturalist, Ecological Research, Ecological Applications, IMA journal:Mathematical Medicine and Biology, Biophysical Chemistry, Journal of Oral Rehabilitation, Ecology, Royal Society Interface, Journal of Biological Systems.

Professional Society Membership:

- Society for Mathematical Biology 1999 - present
- European Society for Theoretical and Mathematical Biology
- Ecological Society of America 2004 - present
- Edinburgh Mathematical Society 1999- present

Teaching experience:

Lecture courses taught:

- 3H Mathematical Biology, University of Glasgow: 2003-04, 2004-05, 2005-06, 2007-08
- 3H Mathematical Ecology, University of Glasgow: 2006-07, 2008-09
- 1R (Algebra), University of Glasgow: 2003-04
- 1S (Calculus), University of Glasgow: 2006-07, 2007-08, 2008-09
- 2X (Calculus), University of Glasgow: 2005-06, 2006-07, 2007-08
- 2A (Calculus), University of Glasgow: 2008-09
- Level 1 Employability, 2005-06, 2007-08
- Math 102 (Linear algebra), University of Alberta: 2001-02, 2002-03

Outreach and mentoring:

- Invited talk and workshop as part of the Scottish Mathematical Challenge for secondary school pupils aged 11-16. Title: *From fences to doughnuts and coffee cups: A mathematical challenge*. 14 June 2006.
- Invited academic mentor for the Graduate Industrial Mathematics Modelling Camp, University of Alberta, Canada. June 5-10 2007. *Funded by Pacific Institute for the Mathematical Sciences*.
- Academic mentor for the Park City Mathematics Institute graduate summer school in Mathematical Biology, June 15-30 2005. *Funded by the Institute for Advanced Study*.
- Academic mentor for the Annual Pacific Institute for the Mathematical Sciences Undergraduate Summer Workshop in Mathematical Biology. May 11-19 2002 and April 30-May 9 2003. *Funded by Pacific Institute for the Mathematical Sciences*.
- Guest lecture. Graduate Mathematical Biology Class. Dept. of Mathematics, University of Nebraska, USA. 13 November 2002. Title: "What to do when your backyard has been invaded by 657 caribou and 82 wolves?". *Funded by University of Nebraska*.

Organisation of Scientific Meetings:

- Co-organiser of the mini-symposium, *Mathematical Modelling of Invertebrate Control*, at the joint meeting for the Society of Mathematical Biology and the Japanese Society for Mathematical Biology, San Jose, USA, 31 July - 4 Aug 2007.
- Invited Co-organiser of the Edinburgh Mathematical Society Postgraduate Meeting for 3 years: 2005, 2006 2007.
- Co-organiser, *Cardiovascular Disease and Vascular Health: Theory and Practice*, University of Strathclyde, 17th December 2007.
- Organiser of a workshop on *Theoretical Ecology*, University of Glasgow, 24th May 2006.
- Co-organiser of the *Atherosclerosis focus group*, University of Strathclyde, 31 March 2005.
- Organiser of a workshop on *Spatial Structure in Ecology*, University of Glasgow, 25 February 2004.

Academic visits:

- Department of Mathematics and the Department of Biological Sciences, University of Nebraska, (Nov 2002). Invited by Prof David Logan. *Funded by the University of Nebraska, USA*.

- Department of Mathematics, Utah State University, (Feb/ 2003). Invited by Prof James Powell. *Funded by Utah State University, USA.*
- Department of Environmental Science and Policy, University of California, Davis, (April 2003). Discussions with Prof Alan Hastings. *Funded by Pacific Institute for Mathematical Sciences.*
- Department of Mathematical and Statistical Sciences, University of Alberta, and Banff International Research Station (March 2004). Invited by Prof Mark Lewis. *Funded by the Pacific Institute for Mathematical Sciences.*
- Department of Mathematics, Utah State University, (June-Dec. 2004). Invited by Prof James Powell. Study Leave.
- Department of Mathematics, Utah State University, (June 2005). Invited by Prof James Powell.
- Department of Mathematical and Statistical Sciences, University of Alberta, (Nov 2006). Invited by Prof Mark Lewis. *Funded by Pacific Institute for Mathematical Sciences and MITACS.*
- Department of Mathematical and Statistical Sciences, University of Alberta, (June 2007). Invited by Prof Thomas Hillen. *Funded by the Pacific Institute for Mathematical Sciences.*

Incoming visitors:

- Prof James Powell, Department of Mathematics and Statistics, Utah State University, USA, April 2007. *Funded by a Royal Society grant.*
- Prof Jennifer Gervais, Department of Wildlife and Fisheries, Oregon State University, USA, May 2006. *Funded through the Engineering and Physical Science Research Council Mathematical and Biomedical Network grant.*

Industrial invitations:

- Invited academic mentor for the 11th Pacific Institute for Mathematical Sciences, Industrial Modelling Workshop, “Connecting industry to solutions”, University of Alberta, Canada 2007. *Funded by: Pacific Institute for the Mathematical Sciences.*
- Invited visit to Unilever, Colworth. Theme: “Computational systems biology approach to cardiovascular health”, 25 February 2005. *Funded by: Unilever.*

Invited presentations at Scientific meetings:

- 2006:**
- Talk in the mini-symposium, “Current trends in modelling evolution”. Joint SIAM-SMB Conference on the Life Sciences, Raleigh, USA. July 31-Aug. 4 2006.
 - Talk in the mini-symposium, “A more global perspective: Tools, approaches and community”. Joint SIAM-SMB Conference on the Life Sciences, Raleigh, USA. July 31-Aug. 4 2006.
 - London Mathematical Society Women in Mathematics Day, De-Morgan House, London. 28 April 2006
- 2004:**
- Workshop on modelling atherosclerosis, University of Strathclyde. 2nd June 2004
- 2003:**
- Scottish Forum for Theoretical Biology. University of Glasgow. 22 Oct. 2003

- The legacy of Lee Segal, Banff International Research Station, Alberta, Canada. July 5-10 2003.
- 2001:** • Workshop on Mathematical Modeling in Science and Engineering. Heriot-Watt University. 16 May 2001

Contributed papers at Scientific meetings:

- 2009:** • Talk at the annual meeting of the Society for Mathematical Biology, Vancouver, Canada, 27-30 July 2009.
- Talk at the BICS Conference on Multiply Structured Populations in Biology, University of Bath, 1-3 July, 2009.
- 2008:** • Talk at the ESMTB conference on Mathematical and Theoretical Biology. Edinburgh, UK. 29 June - 4 July, 2008
- 2007:** • Talk at the workshop “Cardiovascular disease and vascular health: Theory and practice”, University of Strathclyde, 17 December 2007.
- Talk at the joint annual meeting of the Society for Mathematical Biology and the Japanese Society for Mathematical Biology, San Jose, USA, 31 July - 4 August 2007.
- 2006:** • Talk at the Ecological Society of America 91st Annual Meeting, Memphis, USA. 6-11 August 2006.
- 2005:** • Poster presentation at the ESMTB conference on Mathematical and Theoretical Biology. Dresden, Germany. 18-22 July 2005. *Nominated poster*
- Contributed talk. Park City Mathematics Institute Summer Program in Mathematical Biology. Utah, USA. 26 June - 16 July 2005
- 2004:** • Talk at the SMB conference on Mathematics and Biology, Michigan, USA. 25-28 July 2004
- 2003:** • Talk at the Ecological Society of America 88th Annual Meeting, Savannah, Georgia, USA, August 3-8 2003.
- 2002:** • Talk at the SMB conference on Mathematics and Biology. Knoxville, USA. 13-16 July 2002.
- Talk at the ESMTB conference on Mathematical Modelling of Computing in Biology and Medicine. Milano, Italy. 2-6 July 2002.
- 2001:** • Poster presentation at the CoMPLEX Workshop. “Modeling cell systems: the post genomic challenge”, UCL. 15-16 February 2001.
- 2000:** • Poster presentation at the GRC conference on Theoretical Biology and Biomathematics. Tilton New Hampshire USA. 11-16 June 2000.
- Talk at the Edinburgh Mathematical Society Postgraduate students’ Meeting. The Burn, Edzell, Scotland. 2-4 May 2000.
 - Talk at the British Applied Mathematics Conference. UMIST Manchester UK. 25-28 April 2000.

Invited Research Seminars:

- 2009:**
- Applied Mathematics Seminar. University of Ottawa, Canada. 9 September 2009.
 - Boyd Orr Centre for Population and Ecosystem Health. University of Glasgow. 7 May 2009.
- 2008:**
- Applied Mathematics Seminar. University of Bath. 4 December 2008.
- 2007:**
- Applied Mathematics Seminar. University of Liverpool. 14 November 2007.
 - Bioinformatics Research Centre Seminar. University of Glasgow. 2 November 2007.
 - Applied Mathematics and Physics Seminar. Queen's University Belfast. 17 April 2007.
 - Mathematics Seminar. Stirling University. 13 March 2007.
- 2006:**
- PIMS/MITACS Mathematical Biology Seminar. University of Alberta. 27 November 2006.
 - Seminar on discrete and applicable mathematics: London School of Economics. 2 November 2006.
 - Applied Mathematics Seminar. University of Glasgow. 16 February 2006.
- 2005:**
- Mathematics Seminar. University of Stirling. 12 April 2005.
 - Mathematics colloquium. University of Strathclyde. 16th March 2005.
 - Mathematics colloquium. Heriot-Watt University. 11 March 2005.
 - Biology Seminar. NERC Centre for Population Biology at Imperial College, London. 10 February 2005.
- 2004:**
- Mathematics colloquium. Utah State University, USA. 15 November 2004.
 - Statistics and Modelling Science seminar. STAMS, University of Strathclyde. 19 May 2004.
 - Mathematical Biology Seminar. University of Alberta, Canada. 29 March 2004
- 2003:**
- Applied Mathematics Seminar. University of Dundee. 9 December 2003.
 - Mathematical Biology Seminar. University of Alberta, Canada. 10 March 2003.
 - Mathematics colloquium. Utah State University, USA. 20 February 2003.
- 2002:**
- Biological Sciences seminar. University of Nebraska, USA. 14 November 2002.
- 2001:**
- Mathematical Biology Seminar. University of Alberta, Canada. 19 November 2001.

Journal Publications:

1. C. F. Higham, D. E. Wilcox, D. T. Haydon, C. A. Cobbold & D. G. Monckton. Modelling dynamic DNA in mytonic dystrophy. Proceedings of the Fifth International Workshop on Computational Systems Biology, TICSP Series 48:63-66 (2009) ISBN 978-952-15-2160-7
2. C. A. Cobbold, J. Roland, & M. A. Lewis. The impact of parasitoid emergence time on host-parasitoid population dynamics. *Theoretical Population Biology*, Vol. 75(2-3) pp 201-215, (2009)

3. E. Hackett-Jones, C. A. Cobbold, & A. White. Coexistence of multiple parasitoids on a single host due to differences in parasitoid phenology. *Theoretical Ecology* Vol. 2(1) pp 19-31 (2009)
4. C.A. Cobbold, M.A. Lewis, F. Lutscher and J. Roland: How parasitism affects critical patch-size in a host-parasitoid model: application to the forest tent caterpillar. *Theor. Pop. Biol.* Vol. 67(2) pp 109-125 (2005)
5. C.A. Cobbold, J.A. Sherratt and S.R.J. Maxwell: Lipoprotein oxidation and its significance for atherosclerosis: A mathematical approach. *Bull. Math. Biol.* Vol. 64 pp 65-96 (2002)
6. C.A. Cobbold: The role of nitric oxide in the formation of keloid and hypertrophic lesions. *Med. Hypotheses* Vol. 57 pp 497-502 (2001)
7. C.A. Cobbold, J.A. Sherratt: Mathematical modelling of nitric oxide in keloid and hypertrophic scarring. *J. Theor. Biol.* Vol. 204 pp 257-288 (2000)

Submitted:

1. C.A Cobbold, J.A.Powell: Evolution stabilises the synchronising dynamics of poikilotherm life cycles.*Bull. Math. Biol.*

Pre-prints to be submitted over the next few months:

1. E. Hackett-Jones, A. White and C.A.Cobbold: The evolution of developmental timing in natural enemy systems
2. J. Teng, C.A.Cobbold, D. Laferriere et al.: The influence of host competition and predation on tick densities and management implications for lyme disease.
3. J.Gervais and C.A. Cobbold: The effects of environmental stochasticity, uncertainty, and sampling error on the efficacy of fertility control. *Journal of Applied Ecology* in review.

In Preparation:

1. C.A. Cobbold, J.A. Sherratt and S.R.J. Maxwell A mathematical model explaining the differing clinical results of vitamin E in the prevention of cholesterol accumulation. *draft*