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Fernando Muro

Curriculum vitae, May 29th, 2011

<http://personal.us.es/fmuro/index.htm>

Degrees

- September 2007 **Habilitation for Associate Professor (*Profesor Titular*)**, in the field of Algebra, Spain.
- May 2004 **Doctor in Mathematics**, *University of Seville*, Seville, Spain, thesis title: *Representation Theory, Cohomology Invariants and Proper Homotopy Types*.
Supervised by Prof. Antonio Quintero
- July 2002 **Advanced Studies Diploma (DEA) in Mathematics**, *University of Seville*, Seville, Spain.
- August 2000 **Degree (Licenciado, 5 years) in Mathematical Sciences**, *University of Seville*, Seville, Spain.
With Special Award

Positions

- December 2009 – **Associate professor (*profesor titular*)**, *University of Seville*, Department of Algebra, Seville, Spain.
- June 2009 **Assistant professor (*profesor contratado doctor*)**, *University of Seville*, Department of Algebra, Seville, Spain.
- December 2008 **Ramón y Cajal Researcher**, *University of Barcelona*, Department of Algebra and Geometry, Barcelona, Spain.
June 2009 Contract awarded by the Spanish Ministry of Science and Innovation
- January 2007 **Juan de la Cierva Researcher**, *University of Barcelona*, Department of Algebra and Geometry, Barcelona, Spain.
November 2008 Contract awarded by the Spanish Ministry of Science and Education
- January 2005 **Postdoctoral fellow**, *Max-Planck-Institut für Mathematik*, Bonn, Germany.
December 2006 Funded by the Spanish Ministry of Science and Education, ref. no. EX2004-0616
- April 2001 **PhD student fellow**, *University of Seville*, Department Geometry and Topology, Seville, Spain.
December 2004 Funded by the Spanish Ministry of Education, Culture and Sport, ref. no. AP2000-3330
- September 2000 **Graduate Research Fellow**, *Department of Mathematics*, Institute for Mathematics and Fundamental Physics, Madrid, Spain.
December 2000 Funded by an *Introduction to Research* grant of the Spanish National Research Council (CSIC)

Publications

- [20] **A note on K -theory and triangulated derivators**, *Adv. Math.*, 227 (2011) no. 5, 1827–1845.
Joint with G. Raptis
- [19] **Homotopy theory of non-symmetric operads**, *Algebr. Geom. Topol.*, 11 (2011), 1541–1599.
- [18] **The algebra of secondary homotopy operations in ring spectra**, *Proc. London Math. Soc.*, 102 (2011) no. 3, 637–696.
Joint with H.-J. Baues
- [17] **Cohomologically triangulated categories II**, *J. K-Theory*, 3 (2009) no. 1, 1–52.
Joint with H.-J. Baues
- [16] **Toda brackets and cup-one squares for ring spectra**, *Comm. Algebra*, 37 (2009) no. 1, 56–82.
Joint with H.-J. Baues
- [15] **The symmetric action on secondary homotopy groups**, *Bull. Belg. Math. Soc. Simon Stevin*, 15 (2008) no. 4, 733–768.
Joint with H.-J. Baues
- [14] **On K_1 of a Waldhausen category**, *K-theory and Noncommutative Geometry, EMS Series of Congress Reports*, October 2008, 91–116.
Joint with A. Tonks
- [13] **Smash products for secondary homotopy groups**, *Appl. Categ. Structures*, 16 (2008) no. 5, 551–616.
Joint with H.-J. Baues
- [12] **Cohomologically triangulated categories I**, *J. K-Theory*, 1 (2008), no. 1, 3–48.
Joint with H.-J. Baues
- [11] **Secondary homotopy groups**, *Forum Math.*, 20 (2008) no. 4, 631–677.
Joint with H.-J. Baues
- [10] **Maltsiniotis’s first conjecture for K_1** , *Int. Math. Res. Notices*, 2008 (2008), rnm153-31.
- [9] **The 1-type of a Waldhausen K -theory spectrum**, *Adv. Math.*, 216 (2007), no. 1, 178–211.
Joint with A. Tonks
- [8] **Triangulated categories without models**, *Invent. Math.*, 170 (2007), no. 2, 231–241.
Joint with S. Schwede and N. Strickland
- [7] **The homotopy category of pseudofunctors and translation cohomology**, *J. Pure Appl. Algebra*, 211 (2007), no. 3, 821–850.
Joint with H.-J. Baues
- [6] **On the functoriality of cohomology of categories**, *J. Pure Appl. Algebra*, 204 (2006), no. 3, 455–472.
- [5] **The proper L-S category of Whitehead manifolds**, *Topology Appl.*, 153 (2005), no. 4, 557–579.
Joint with M. Cárdenas and A. Quintero
- [4] **Proper L-S category, fundamental pro-groups and 2-dimensional proper co- H -spaces**, *Topology Appl.*, 153 (2005), no. 4, 580–604.
Joint with M. Cárdenas, F. F. Lasheras and A. Quintero
- [3] **Suspensions of crossed and quadratic complexes, co- H -structures and applications**, *Trans. Amer. Math. Soc.*, 357 (2005), no. 9, 3623–3653.

- [2] **Representation theory of some infinite-dimensional algebras arising in continuously controlled algebra and topology**, *K-Theory*, 33 (2004), no. 1, 23–65.
- [1] **An elementary approach to the projective dimension in proper homotopy theory**, *Comm. Algebra*, 31 (2003), no. 12, 5995–6017.
Joint with R. Ayala, M. Cárdenas and A. Quintero

Conferences

Invited addresses

- 5–9 September 2011 **TBA**, *Congress of Young Researchers RSME*, Soria, Spain.
Organized by the Spanish Royal Mathematical Society (RSME) and the University of Valladolid
<http://www.jirsme.uva.es/index.html>
- 7–9 July 2011 **K-theory and t-structures**, *Workshop on t-structures and related topics*, Stuttgart, Germany.
Organized by the University of Stuttgart
<http://www.iaz.uni-stuttgart.de/LstAGeoAlg/activities/t-work.t>
- 12–17 June 2011 **TBA**, *Triangulated categories and applications*, Banff, Canada.
Organized by the Banff International Research Station
<http://www.birs.ca/events/2011/5-day-workshops/11w5009>
- 20–21 mayo 2011 **Comparing spaces of algebraic structures**, *Categorical Aspects in Geometry and Topology*, Salamanca, Spain.
Organized by the University of Salamanca
<http://campus.usal.es/~acgt>
- 8 April 2011 **Derivator K-theory**, *Symposium on Homotopical Algebra and Categories*, Murcia, Spain.
Organized by the University of Murcia
- 3–4 February 2011 **Maltsiniotis's conjectures in K-theory**, *Higher Homotopy in London*, London, UK.
Organized by the London Metropolitan University
<http://www.londonmet.ac.uk/research/storm/news/news.cfm>
- 14–15 May 2010 **Wild and tame aspects of non-Grothendieck abelian categories, II** *Symposium on Algebra in Ceuta*, Ceuta, Spain.
Organized by the University of Granada
- 22–27 January 2010 **Representability of cohomology theories**, *Joint Mathematical Conference CSASC 2010*, Prague, Czech Republic.
Organized by the Czech Mathematical Society in collaboration with the Mathematical Societies of Austria, Catalonia, Slovakia, and Slovenia
<http://cms.jcmf.cz/csasc>
- 16–19 September 2009 **From ordinary to enhanced triangulated categories**, *Derived Categories in Algebra, Topology and Geometry*, Leicester, UK.
Organized by the University of Leicester and the London Mathematical Society
<http://www2.le.ac.uk/departments/mathematics/extranet/conferences/lms-regional-meeting-2009/workshop-information>
- 26–30 May 2009 **On the existence and uniqueness of enhancements**, *Triangulated Categories and Singularities*, Paderborn, Germany.
Organized by the Paderborn Representation Theory Group
<http://www2.math.uni-paderborn.de/ags/pbrep/meetings/triangulated-categories-and-singularities.html>
- 10–14 May 2008 **How far is a triangulated category from a model?**, *Algebraic Topology Conference in Buenos Aires*, Buenos Aires, Argentina.
Organized by the University of Buenos Aires
<http://mate.dm.uba.ar/~gminian/conference.html>

- 10–12 September 2008 **On determinants (as functors)**, *Seminar on Categories and Applications SECA V*, Pontevedra, Spain.
Organized by the University of Vigo
<http://www.usc.es/regaca/seca5>
- 26–28 March 2008 **When can we enhance a triangulated category?**, *Conference on Homology and Homotopy*, Bonn, Germany.
Organized by the Max-Planck-Institut für Mathematik
<http://www.mpim-bonn.mpg.de/Events/This+Year+and+Prospect/Conference+on+Homology+&+Homotopy>
- 16–17 November 2007 **Triangulated categories which are not homotopy categories**, *TALL2007*, Lens, France.
Organized by the Universities of Lens and Lille
<http://math.univ-lille1.fr/topologie/tall>
- 5–14 November 2007 **On Massey products and triangulated categories**, *Workshop on Derived Categories*, Bellaterra, Spain.
Organized by the Centre de Recerca Matemàtica
http://www.crm.es/Derived_Categories
- 24–28 September 2007 **Picard categories, determinants functors and K-theory/Exotic triangulated categories**, *Categories in Geometry and in Mathematical Physics*, Split, Croatia, two talks.
Organized by the Institute Rudjer Boskovic and the University of Split
<http://www.irb.hr/korisnici/zskoda/catconf.html>
- 4–5 June 2007 **Exotic triangulated categories**, *Barcelona Topology Workshop 2007*, Bellaterra, Spain.
Organized by the Autonomous University of Barcelona and the Centre de Recerca Matemàtica
http://mat.uab.es/~topalg/page_Workshop07_.html
- 24–25 November 2006 **The 1-type of Waldhausen K-theory**, *Sixth Nordrhein-Westfalen Topology Meeting*, Düsseldorf, Germany.
Organized by the University of Düsseldorf
<http://reh.math.uni-duesseldorf.de/~internet/NRWTopology>
- 30 October 2005 **Secondary homotopy groups**, *Algebraic and Stable Homotopy Theory*, Rottach-Egern, Germany, three talks.
Organized by the Max-Planck-Institut für Mathematik
- 6–10 June 2005 **Triangulated track categories**, *International Mediterranean Congress of Mathematics Almería 2005*, Almería, Spain.
Organized by the University of Almería
<http://www.ual.es/Congresos/CIMMA2005>
- 27–28 May 2005 **Triangulated categories and translation cohomology**, *First Czech-Catalan Conference in Mathematics*, Prague, Czech Republic.
Organized by the Czech and Catalan Mathematical Societies
<http://cms.jcmf.cz/czech-catalan>
- 8–9 April 2005 **Obstruction theory in groupoid-enriched categories**, *XII Spanish Topology Meeting*, Puerto de la Cruz, Spain.
Organized by the University of La Laguna
- 17–18 September 2004 **Cohomology of categories, infinite matrices, and proper homotopy theory**, *Seminar of Category Theory and its Applications SECA II*, Granada, Spain.
Organized by the University of Granada
<http://www.ugr.es/~seca>

Organization

- 21–22 **18th Spanish Topology Meeting.**
October 2011 To be held at the University of Seville, Spain
<http://www.imus.us.es/ACT/18et>
- 12–13 **Homotopical methods in geometry and algebra.**
March 2010 Held at the University of Seville, Spain
<http://www.imus.us.es/mhga2010>
- 23–24 **XVI Spanish Topology Meeting.**
October 2009 Held at the University of Almería, Spain
<http://nevada.ual.es:81/topologia/index.php>

Contributions

- 16–20 **Categorical groups in brave new algebra, *Workshop on Categorical Groups*,**
June 2008 Barcelona, Spain, talk.
Organized by the Centre de Recerca Matemàtica
<http://www.mat.uab.cat/~kock/crm/hocat/cat-groups>
- 31 August **On the 1-type of Waldhausen K-theory, *VASBI ICM Satellite Conference on K-***
6 September ***theory and Noncommutative Geometry*,** Valladolid, Spain, talk.
2006 Organized by the University of Valladolid
<http://mate.dm.uba.ar/~gcorti/VASBI.htm>
- 22–30 **The 1-type of a Waldhausen K-theory spectrum, *International Congress of Math-***
August 2006 ***ematicians 2006*,** Madrid, Spain, poster.
Organized by the International Mathematical Union
<http://www.icm2006.org>
- 13–19 **Triangulated categories with universal Toda brackets, *Workshop on Triangulated***
August 2006 ***Categories*,** Leeds, UK, talk.
Organized by the University of Leeds
<http://www.maths.leeds.ac.uk/Pure/algebra/TriCat06.html>
- 21–25 **Triangulated track categories, *Skye Conference on Pure and Applied Topology*,** Isle
June 2005 of Skye, UK, talk.
Organized by the University of Aberdeen
<http://www.abdn.ac.uk/~wpe006/conference/skye/>
- 13–14 **Suspensions of crossed modules, *19th British Topology Meeting*,** Glasgow, UK, talk.
September 2004 Organized by the University of Glasgow
<http://www.maths.gla.ac.uk/~ajb/BTop19>
- 12–13 **Representation theory, proper homotopy and cohomology of categories, *XI Span-***
March 2004 ***ish Topology Meeting*,** Barcelona, Spain, poster.
Organized by the University of Barcelona
<http://atlas.mat.ub.es/xietop>
- 9–13 **The proper Lusternik-Schnirelmann category of Whitehead manifolds, *Algebraic***
September 2003 ***Topology in Málaga 2003*,** Málaga, Spain, talk.
Organized by the University of Málaga
<http://agt.cie.uma.es/~atm03>
- 14–25 **On the proper homotopy classification of locally compact A_n^2 -polyhedra, *Special***
July 2003 ***Year on Algebraic Geometry and Topology: Conference on Topology*,** Canberra, Aus-
tralia, talk.
Organized by the Australian National University
- 18–21 **On the proper homotopy classification of locally compact A_n^2 -polyhedra, *First***
June 2003 ***Joint Meeting AMS-RSME*,** Seville, Spain, talk.
Organized by the American and Spanish Mathematical Societies
<http://congreso.us.es/rsme-ams>

2–3 **Suspensions of crossed modules**, *X Spanish Topology Meeting*, Bilbao, Spain, poster.
May 2003 Organized by the University of the Basque Country
<http://www.ehu.es/xet>

Attendance

- 10–12 **Barcelona Topology Workshop 2010**, Torroja del Priorat, Spain.
December 2010 Organized by the Autonomous University of Barcelona
<http://mat.uab.es/~btw>
- 26–27 **XVII Spanish Topology Meeting**, Zaragoza, Spain.
November 2010 Organized by the Spanish Topology Network and the University of Zaragoza
<http://et17.unizar.es>
- 22–23 **Braids**, Barcelona, Spain.
October 2010 Organized by the Spanish Topology Network and the Mathematical Institute of the University of Barcelona
<http://www.imub.ub.es/braids10>
- 20–26 **International Category Theory Conference CT2010**, Genoa, Italy.
June 2010 Organized by the University of Genoa
<http://ct2010.disi.unige.it>
- 23–25 **Focused workshop on \mathbb{F}_1 -geometry**, Granada, Spain.
November 2009 Organized by the University of Granada
http://www.ugr.es/~nc_alg/f1
- 25–27 **Workshop on Interactions between Representation Theory and Commutative Algebra**, Barcelona.
September 2008 Organized by the Centre de Recerca Matemàtica and the Institut de Matemàtica de la Universitat de Barcelona
<http://www.crm.es/IRTACA>
- 15–19 **International Conference on K-Theory and Homotopy Theory**, Santiago de Compostela, Spain.
September 2008 Organized by the University of Santiago de Compostela
<http://www.usc.es/regaca/ktht>
- 30 June **Homotopy Structures in Geometry and Algebra, Derived Categories, Higher**
5 July 2008 **Categories**, Bellaterra, Barcelona.
Organized by the Centre de Recerca Matemàtica
<http://www.crm.es/HOCAT2008>
- 22–28 **Homotopical Group Theory and Topological Algebraic Geometry**, Bonn, Germany.
June 2008 Organized by the Max-Planck-Institut für Mathematik
<http://www.ruhr-uni-bochum.de/topologie/conf08>
- 1–5 **Topological and Differentiable Stacks**, Bellaterra, Spain.
April 2008 Organized by the Centre de Recerca Matemàtica
<http://www.crm.es/STACKS>
- 18–22 **Algebra and Geometry of Groups and Classifying Spaces**, Bellaterra, Spain.
February 2008 Organized by the Centre de Recerca Matemàtica
<http://www.crm.es/WKSATGCS>
- 7–9 **SECA4, IV Seminar on Categories and Applications**, Bellaterra, Spain.
June 2007 Organized by the Autonomous University of Barcelona and the Centre de Recerca Matemàtica
<http://mat.uab.es/~seca4>
- 10–16 **Mathematische Arbeitstagung 2005**, Bonn, Germany.
June 2005 Organized by the Max-Planck-Institut für Mathematik

- 24–29 **Arolla Conference on Algebraic Topology**, Arolla, Switzerland.
 August 2004 Organized by the University of Lausanne and the Ecole Polytechnique Fédérale de Lausanne
<http://www2.unil.ch/cat04>
- 17–19 **Conference in Algebraic Topology**, Louvain la Neuve, Belgium.
 June 2004 Organized by the University of Louvain la Neuve
- 2–6 **Barcelona Conference on Algebraic Topology**, Barcelona, Spain.
 July 2002 Organized by the Centre de Recerca Matemàtica
<http://www.crm.es/Conferences/antics/0102/2002Bcat.htm>
- 27 May **Modern Homotopy**, Louvain la Neuve, Belgium.
 1 June 2002 Organized by the Universities of Louvain la Neuve and Lille
- 2–4 **IX Spanish Topology Meeting**, Jaca, Spain.
 May 2002 Organized by the University of Zaragoza

Advanced courses

Invited address

- 7–12 **Triangulated categories**, *Advanced School on Homotopy Theory and Algebraic Geometry*, Seville, Spain, two talks.
 September 2009 Organized by the Mathematical Research Institute of the University of Seville (IMUS)
<http://congreso.us.es/htag09/php/index.php>

Organization

- 19–23 **Advanced Course on Topological Quantum Field Theories**.
 October 2009 Held at the University of Almería, Spain
<http://nevada.ual.es:81/topologia/curso.php>

Attendance

- 25–30 **International School on Combinatorics “Pilar Pisón-Casares”**, Seville, Spain.
 January 2010 Organized by the Algebra Department and the Mathematical Research Institute of the University of Seville (IMUS)
<http://congreso.us.es/iscpp2010>
- 23–24 **Towards a p-adic Langlands Correspondence**, Seville, Spain.
 October 2009 Organized by the Mathematical Research Institute of the University of Seville (IMUS)
<http://congreso.us.es/planglands09/php/Langlands.php>
- 4–14 **Advanced Course on Simplicial Methods in Higher Categories**, Bellaterra, Spain.
 February 2008 Organized by the Centre de Recerca Matemàtica
<http://www.crm.es/HigherCategories>
- 22–27 **Sedano Winter School on K-Theory**, Sedano, Spain.
 January 2007 Organized by the University of Valladolid
http://cms.dm.uba.ar/Members/gcorti/workgroup.swisk/index_html.html
- 26 July **Summer school on the interactions between homotopy theory and algebra**,
 6 August 2004 Chicago, USA.
 Organized by the University of Chicago
<http://jdc.math.uwo.ca/summerschool>
- 14–16 **Course on configuration spaces**, Louvain la Neuve, Belgium.
 June 2004 Organized by the University of Louvain la Neuve

- 12–20 **Summer School on String Topology and Hochschild Homology: Applications to**
September 2003 **Mathematical Physics**, Almería, Spain.
Organized by the Groupement de Recherche Européen “Topologie Algébrique” and the Centre de Recerca Matemàica
<http://www.ual.es/congresos/GDRETA>
- 9–13 **p -Local homotopy theory of classifying spaces**, Nice, France.
December 2002 Organized by the Laboratoire J. A. Dieudonné Université de Nice Sophia-Antipolis
- 18–22 **Advanced Course on Proper Group Actions**, Bellaterra, Spain.
September 2001 Organized by the Centre de Recerca Matemàica
<http://www.crm.es/Conferences/antics/0102/coursegroupact.htm>

Participation in Research Projects and Grants

- 2011–2014 **Triangulated structures in algebra, geometry and topology**, *main researcher*, awarded by the Andalusian Ministry of Economy, Innovation and Science, ref. no. FQM-5713.
- 2010–2012 **Higher order homotopy in algebra and geometry**, *researcher*, awarded by the Spanish Ministry of Science and Innovation, ref. no. MTM2010-15831, main researcher: Carles Casacuberta, University of Barcelona.
- 2009– **Algebraic geometry, differential systems and singularities**, *researcher*, Andalusian Research Plan, ref. no. FQM218, main researcher: Luis Narváez, University of Seville, Spain.
- 2009–2013 **Research group on geometry and algebraic topology**, *researcher*, Catalan Established Research Group, ref. no. 2009 SGR 119, main researcher: Prof. Carles Casacuberta, University of Barcelona, Spain.
- 2007–2009 **Higher order homotopy structures**, *researcher*, awarded by the Spanish Ministry of Science and Education, ref. no. MTM2007-63277, main researcher: Prof. Carles Casacuberta, University of Barcelona, Spain.
- 2004–2006 **Localizations in simplicial model categories**, *researcher*, awarded by the Spanish Ministry of Science and Education, ref. no. MTM2004-03629, main researcher: Prof. Carles Casacuberta, University of Barcelona, Spain.
- 2004–2006 **New contributions to the algebraic and geometric topology of the proper category and the digital category. Construction and application of new invariants in these categories**, *researcher*, awarded by the Spanish Ministry of Science and Education, ref. no. MTM2004-01865, main researcher: Prof. Antonio Quintero, University of Seville, Spain.
- 2004–2005 **Topology of 2-complexes**, *researcher*, Scientific and Technological Cooperation Project between the Republic of Slovenia and the Kingdom of Spain, awarded by the Spanish Ministry of Foreign Affairs and Cooperation, main researchers: Prof. Francisco F. Lasheras, University of Seville, Spain, and Prof. Dušan Repovš, University of Ljubljana, Slovenia.
- 2001–2003 **Development of the algebraic and geometric topology of non-compact spaces**, *researcher*, awarded by the Spanish Ministry of Science and Education, ref. no. BFM2001-3195-C02-01, main researcher: Prof. Antonio Quintero, University of Seville, Spain.
- 2001–2009 **Proper homotopy**, *researcher*, Andalusian Research Plan, ref. no. FQM189, main researcher: Prof. Antonio Quintero, University of Seville, Spain.

Research Visits

- February 2011 **Bielefeld University, Germany**, *Faculty of Mathematics*, two weeks.
- July 2010 **University of Salamanca**, *Faculty of Mathematics*, one week.
- February 2009 **University of Paris 7 Denis Diderot, France**, *Institut de Mathématiques de Jussieu*, one week.
- October–November 2008 **University of Regensburg, Germany**, *Naturwissenschaftliche Fakultät I - Mathematik*, one week.
- April 2008 **University of Aarhus, Denmark**, *Center for the Topology and Quantization of Moduli Spaces*, one week.
- October 2005 **University of La Rioja, Spain**, *Department of Mathematics and Computing*, one week.
- April 2005 **University of La Laguna, Spain**, *Department of Fundamental Mathematics*, one week.
- April 2005 **London Metropolitan University, UK**, *Department of Computing, Communications Technology and Mathematics*, one week.
- February 2004 **University of Granada, Spain**, *Department of Algebra*, one week.
- July–September 2003 **University of Barcelona, Spain**, *Department of Algebra and Geometry*.
- February 2003 **Max-Planck-Institut für Mathematik, Bonn, Germany**, three weeks.
- May–October 2002 **University of Barcelona, Spain**, *Department of Algebra and Geometry*, six months.
- September–October 2001 **Autonomous University of Barcelona, Spain**, *Department of Mathematics*, two months.
- June 2001 **Max-Planck-Institut für Mathematik, Bonn, Germany**, two weeks.

Refereeing and Reviewing

Referee for the following journals, *Algebraic & Geometric Topology*, *Applied Categorical Structures*, *Compositio Mathematica*, *Journal of Homotopy and Related Structures*, *Journal of K-Theory*, *Journal of Pure and Applied Algebra*, *London Mathematical Society Journals*.

Reviewer for, *Mathematical Reviews*, 17 reviews.

Theses

- 2011 **Adams representability in triangulated categories**, *Oriol Raventós Morera*, co-supervisor, University of Barcelona.
Co-supervised together with Carles Casacuberta
- 2011 **Homological functors with coefficients**, *Ng E-Jay*, external examiner, National University of Singapore.
Supervised by Jon Berrick

Teaching Experience

- Term 2010/2011 **Elements of Advanced Algebra**, Master in Advanced Mathematics, second semester, University of Seville, Spain.
Homological algebra and applications
- Term 2010/2011 **Linear Algebra and Geometry II**, for students of Mathematics, first and second semester, University of Seville, Spain.
Hyperquadrics in projective and affine spaces

- Term 2010/2011 **Linear Algebra and Geometry I**, for students of Mathematics, first semester, University of Seville, Spain.
Matrices, vector spaces, homomorphisms, affine, projective and euclidean geometry
- Term 2009/2010 **Algebra II**, for students of Statistics, second semester, University of Seville, Spain.
Matrices, vector space endomorphisms, affine geometry
- Term 2009/2010 **Linear Algebra and Geometry**, for students of Physics, first and second semester, University of Seville, Spain.
Matrices, vector spaces, affine and euclidean geometry
- Term 2009/2010 **Linear Algebra and Geometry I**, for students of Mathematics, first and second semester, University of Seville, Spain.
Matrices, vector spaces, homomorphisms, affine, projective and euclidean geometry
- Term 2008/2009 **Algebraic Topology**, for students of Mathematics, second semester, University of Barcelona, Spain.
Simplicial homology, singular homology, and applications
- Term 2008/2009 **Discrete Mathematics**, for students of Computer Science, second semester, University of Barcelona, Spain.
Arithmetic, combinatorics, graph theory
- Term 2007/2008 **Algebraic Topology**, for students of Mathematics, second semester, University of Barcelona, Spain.
Simplicial homology, singular homology, and applications
- Term 2007/2008 **Algebra II**, for students of Mathematics, first semester, University of Barcelona, Spain.
Rings, modules, categories, algebras, algebraic varieties
- Term 2006/2007 **Algebraic Topology**, for students of Mathematics, second semester, University of Barcelona, Spain.
Singular homology and applications
- August–October 2006 **Group cohomology classes associated to representations of the 4-subspace quiver**, *Praktikum*, supervision of the student Matthias Henze from the University of Magdeburg, Germany, Max-Planck-Institut für Mathematik, Bonn, Germany.
- Term 2004/2005 **Singular (co)homology**, for students of Mathematics, first semester, University of Seville, Spain.
Singular (co)homology, Poincaré duality, applications
- Term 2003/2004 **Mathematics II**, for students of Chemistry, first and second semester, University of Seville, Spain.
Calculus in many variables, probability and statistics
- Term 2002/2003 **Mathematics II**, for students of Chemistry, second semester, University of Seville, Spain.
Calculus in many variables, probability and statistics

Languages

Spanish, native.

English, proficient.

German, good.

Catalan, proficient.