



THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

COLLEGE OF ARTS & SCIENCES

STUDY ABROAD OFFICE

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September 1, 2016

Administrative Board of the College of Arts & Sciences
Office of General Education
CB #3510
300 Steele Building
UNC-CH

UNC Math & Spanish in Costa Rica- Summer

Dear Colleagues:

The Study Abroad Office, in conjunction with the Departments of Mathematics and Romance Studies, submits for your approval this proposal to establish a faculty-led summer study abroad program in San José, Costa Rica beginning in the summer of 2017 and continuing annually.

This proposal was developed by Dr. Justin Sawon (Associate Professor of the Department of Mathematics) and Dr. Corina Dueñas (UNC-Chapel Hill Study Abroad Office).

The proposed Math and Spanish program in Costa Rica has the approval of the Chair and Director of Undergraduate Studies of the Department of Mathematics, Dr. Richard McLaughlin and Dr. Jeremy Marzuola, respectively. The Spanish courses have been approved by the Department of Romance Studies.

Program overview

This **six-week summer** study abroad program will be led by a UNC-CH Math professor and hosted by the **University of Costa Rica** on its **San José** campus. Participants will enroll in two courses. All UNC-CH students on this program will take **MATH 381: Discreet Mathematics** (3 UNC-CH graded credits), and they will take a **200-level Spanish course** offered by the University of Costa Rica, depending on their level (3 TREQ credits). The Spanish courses have been pre-approved by the Department of Romance Studies to fulfill Spanish 203 or Spanish 204.

Program rationale

By teaching a math course in an international context, this program will contribute to the university's objective of offering more international opportunities to STEM students. Attendance at study abroad information sessions for science majors has more than doubled, demonstrating this need and their interest in such programs.

In 2016 UNC-CH formulated a Quality Enhancement Plan (QEP) as part of its reaccreditation from the Southern Association of Colleges and Schools. One of the main focuses of the QEP is to increase the number of study abroad opportunities for STEM students. Generally STEM majors are less likely to study abroad than other majors, but the Study Abroad Office has been successful in organizing summer study abroad programs for science students in France, Spain, Sweden, China and Costa Rica. These summer programs run for about 6 weeks and are led by UNC-CH faculty who teach a UNC-CH course in a foreign classroom. Students typically pair such a course with a language or cultural course run by the foreign university. Examples include “Organic Chemistry in Sevilla, Spain”, “Biochemistry in Grenoble, France”, and “Biology & Spanish in Costa Rica”. Some of these programs have been consistently enrolled to capacity.

In particular, the Spanish Minor for the Health Professions program has successfully run for four consecutive summers in Costa Rica and is one of the most popular summer programs, consistently receiving twice the number of applications than slots. The Biology 202 & Spanish in Costa Rica had a successful first run in the summer of 2016. This new proposed Math program will follow the same model as that of the Biology Program.

As part of Dr. Sawon’s NSF CAREER grant, he proposes offering MATH 381 (Discrete Mathematics) at the Universidad de Costa Rica (UCR). The program will give students access to this course in a unique small group and international setting. The UCR-taught Spanish course will offer students a connection to the host city and culture, giving students international exposure.

The choice of MATH381 is based on a number of considerations. It is required of all math majors and math minors; it is also popular among computer science majors. This guarantees healthy demand for the course. The Math Department usually teaches five sections of up to 40 students each fall and spring, plus additional sections in summer sessions I and II, for an annual enrollment of at least 400 students. There are often waitlists for students wanting to take this course. The summer program should appeal to rising sophomores and juniors, after they have taken the calculus sequence and possibly MATH 383 (Differential Equations) and MATH 547 (Linear Algebra). As an ‘introduction to proofs’ course, MATH381 is a gateway to upper level mathematics courses, and students will benefit from the smaller class size of the summer program (minimum of 10, maximum of 20). There would also be an opportunity for a few students to pursue an undergraduate research project. Initially there is no proposed academic credit for such a project, but the program will instead subsidize the travel costs of the students selected to work on it. Dr. Sawon’s NSF CAREER grant includes \$2000 per year for five years for this purpose.

Resident Director

Associate Professor and Director of Graduate Studies, Justin Sawon, will serve as the UNC-CH Resident Director in 2017 and beyond. Prof. Sawon’s CV is provided with this proposal.

Other UNC-CH math faculty members may serve as the resident director in future years. Allowing faculty to rotate years will give others an opportunity to participate in the program and will allow the program to be sustainable.

Partner Institution: The University of Costa Rica

Given that UNC-CH has been running a very successful study abroad program with the Office of International Affairs and External Cooperation and the UCR School of Public Health for the last four years, it was easily decided to partner again with UCR to add first the biology program and then expand to this program.

UCR has a rich and accomplished history since it was established in 1843. Its vision aims to teach and find ways to benefit the Costa Rican people and the Central American Region through research and critical thinking. Its main guiding principles included academic freedom, respect for cultural and ethnic diversity, respect for people and for freedom of speech, academic excellence and a commitment to the environment.

UCR is a leading international university. It is the top-ranked university in Central America and, this year, UCR was again ranked by the Quacquarelli Symonds Limited Rankings as the #1 university in Costa Rica and # 18 in all of Latin America. The University carries out joint activities with faculty members and researchers from many universities, agencies and international cooperation institutions around the world. The Office of International Affairs and External Cooperation (OAICE, in Spanish) has fully endorsed and agreed to work with UNC-CH in this and other study abroad programs.

Costa Rica, and UCR in particular, were also chosen since Dr. Sawon's collaborator, Anthony Varilly-Alvarado (Rice University) is from Costa Rica. He often spends his summers there and they plan to organize a small workshop or graduate summer school while they are there. His father, Joseph C. Varilly, is also a mathematician at the Universidad de Costa Rica who works on non-commutative geometry.

Finally, with the International Congress of Mathematicians to be held in Rio de Janeiro in 2018, Dr. Sawon anticipates an upswing in interest and support for mathematics in Central and South America, and our students will benefit from their initiation into the mathematical culture of the region.

Additional information about the University of Costa Rica can be found at www.ucr.ac.cr.

Program dates

The proposed program dates for 2017 are May 25 – July 7. These dates correspond with the existing Biology & Spanish program that will be in its second year in 2017. Students from both programs can join in the Spanish courses and on cultural activities.

Program content

Students will take two courses:

1. MATH 381: Discrete Mathematics, 3 UNC-CH graded credits, taught by Justin Sawon. See the syllabus attached to this proposal.
2. SPAN 203 or 204 – a 200-level Spanish Course designed and offered by the UCR. See the syllabi attached to this proposal.

The program will include guest speakers, some on general Costa Rican culture and others from the Mathematics Department of UCR. An excursion, such as to a coffee plantation or a biodiversity park will also be arranged for the group. Students may also participate in free cultural classes through the home stay provider, the Costa Rican Language Academy (CRLA).

Enrollment

The program will accept applications from UNC-CH and non-UNC-CH undergraduate students, with priority given to UNC-CH students. Target program enrollment is 20 participants. Applicants must have a minimum GPA of 2.75 and at least rising sophomore status. MATH 232 or MATH 283 is a pre-requisite.

On-site logistics

UCR will provide a full range of logistical support including program development, on-site orientation, excursions, and 24/7 emergency support.

UCR will provide necessary facilities including classroom space and arrange guest lectures. According to Dr. Kelly Hogan, who served as Resident Director for the Biology/Spanish program during the summer 2016, support from UCR “was extremely kind and helpful” and the International Office found guest lecturers who were very on topic and at the “perfect level for the course.”

The on-site orientation includes a guided tour of the UCR campus. Then, students will have a second orientation at CRLA related to home stay rules and safety/security, followed by a guided city bus tour.

CRLA hosts a welcome dinner and UCR arranges a final dinner. Both of these offer more bonding opportunities for the students with each other and with the host institutions.

Student Accommodation and Resources

Students have the opportunity to experience Spanish language and culture through daily interaction with Costa Rican families through home stays, a key component of the program. These homestays are located in the neighborhoods near the UCR campus in San Pedro. The host families will provide breakfast, dinner and laundry services. CRLA organizes the home stays and offers 24-hour support. According to Dr. Kelly Hogan, “Student housing was good. CRLA was amazingly accommodating. They will change homestays for any reason. They will take students to clinic. They will help bail them out if student loses belongings including money and passport. CRLA is and should be recognized for all it does and it takes a huge burden off the program director.” CRLA also offers free classes (dance, cooking, yoga) in the afternoons, and good, free wifi. The students enjoy spending time there after classes.

Corina Dueñas, Latin America, Africa and the Middle East Program Director of the Study Abroad Office, conducted a site visit to the UCR campus in San José in May 2016. She also visited CRLA, three of the host families, and was present for the entire day of orientation given to the Spanish Minor for the Professions students. Further information about CRLA can be found at <http://www.spanishandmore.com/>.

Health and Safety

Students will be enrolled in international accident and health insurance through HTH Worldwide (www.hthstudents.com) for the duration of the program.

There are no immediate health or safety concerns in San José. Modern medical facilities and highly skilled medical practitioners are available in Costa Rica. According to the State Department website's country description for Costa Rica, the country has a low rate of violent crime. The most common issue tourists, students and volunteers face in Costa Rica, if any, is that of pickpockets around areas frequented by tourists.

The water is safe to drink all over the country and definitely in San José. Still, the most common health incident is stomach-related. If needed, students have access to a private clinic with good service and English-speaking doctors.

There are few mosquitos in San Jose because of elevation and temperatures. This can be an issue if they travel on their own to the coast, but students should follow CDC advice for protection against mosquitos.

We are happy to provide any further information that you may need to evaluate this proposal.

Yours sincerely,



Dr. Richard M. McLaughlin, Professor and Chair, Department of Mathematics

Date 9/22/16



Dr. Federico Luisetti, Professor and Chair, Department of Romance Studies

Date



Dr. Robert Miles, Associate Dean: Study Abroad and International Exchanges

Date

Justin Sawon

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Education

- 2000 PhD, Mathematics, University of Cambridge, UK
Dissertation: *Rozansky-Witten invariants of hyperkähler manifolds*
Advisor: *Prof Nigel Hitchin*
- 1996 MSc, Mathematics, University of Adelaide, Australia
Dissertation: *Homomorphisms of semi-holonomic Verma modules: an exceptional case*
Advisor: *Prof Michael Eastwood*
- 1994 BSc, 1st class honours, Mathematics, University of Adelaide, Australia
Honours thesis: *The Borel-Weil theorem for projective space*

Employment

- 2016–present Associate Professor in the Department of Mathematics, University of North Carolina
- 2010–2015 Assistant Professor in the Department of Mathematics, University of North Carolina
- 2006–2009 Assistant Professor in the Department of Mathematics, Colorado State University
- 2002–2006 Simons Instructor in the Department of Mathematics, SUNY at Stony Brook
- 1999–2002 Esmee Fairbairn Junior Research Fellow at New College, University of Oxford

Visiting positions

- May–Jul 2013 Visiting researcher at the Erwin Schrödinger Institute, Vienna
- Sep–Dec 2011 Participant in the Junior Trimester Program on Differential Geometry at the Hausdorff Research Institute for Mathematics, Bonn
- Jul–Dec 2011 Visiting researcher at the Max-Planck-Institut für Mathematik, Bonn
- May–Jun 2006 Visiting researcher at the Max-Planck-Institut für Mathematik, Bonn
- Jun–Aug 2005 Visiting researcher at Johannes Gutenberg Universität, Mainz
- Jun–Aug 2004 Visiting researcher at the Research Institute for Mathematical Sciences, Kyoto
- Jun–Aug 2003 Visiting researcher at the Institut des Hautes Études Scientifiques, Bures-sur-Yvette
- Mar–May 2002 Visiting researcher at the Isaac Newton Institute, Cambridge
- Dec 2001–Mar 2002 European Differential Geometry Endeavour postdoctoral fellow, Università di Roma 1

Awards and scholarships

- 2007+2008+2009 Colorado Mathematics Awards for outstanding service to students
- 1999–2000 Trinity College (Cambridge) Senior Rouse Ball Studentship
- 1996–1999 Trinity College (Cambridge) External Research Studentship, Overseas Research Student Award, Honorary Packer Scholar
- 1998 J.T. Knight Prize for mathematical essay, awarded by University of Cambridge
- 1995–1996 Australian Postgraduate Award for MSc research at University of Adelaide
- 1994 Amar Hasan Abdi Prize for top honours mathematics student, University of Adelaide
- 1992+1993 Best entries in the Sydney University Mathematics Society national competition

- 1993 David Murray Scholarship, J.R. Wilton and E.S. Barnes Prizes for top 3rd year mathematics student, University of Adelaide
 1992 J.H. Michael Prize for top 2nd year mathematics student, University of Adelaide
 1991 Honourable mention at the International Mathematics Olympiad in Sweden

Preprints (available online at www.unc.edu/~sawon)

1. Justin Sawon, *Singular fibres of generic Lagrangian fibrations*, in preparation, 15 pages.
2. Justin Sawon, *A bound on the second Betti number of hyperkähler manifolds of complex dimension six*, preprint [arXiv:1511.09105](https://arxiv.org/abs/1511.09105) (2015), 7 pages.
3. Justin Sawon, *Isotrivial elliptic K3 surfaces and Lagrangian fibrations*, preprint [arXiv:1406.1233](https://arxiv.org/abs/1406.1233), 17 pages, submitted to *Mathematische Nachrichten*, December 2014.
4. Justin Sawon, *Fourier-Mukai transforms, mirror symmetry, and generalized K3 surfaces*, preprint [arXiv:1209.3202](https://arxiv.org/abs/1209.3202) (2012), 26 pages.

Refereed publications (available online at www.unc.edu/~sawon)

1. Justin Sawon, *Moduli spaces of sheaves on K3 surfaces*, in the Special Issue “Instanton counting: moduli spaces, representation theory and integrable systems” (Lorentz Center, Leiden, Netherlands, 2014), *Journal of Geometry and Physics*, 15 pages.
2. Justin Sawon, *A finiteness theorem for Lagrangian fibrations*, *Journal of Algebraic Geometry* (2015), 29 pages, DOI: 10.1090/jag/673.
3. Rebecca Glover and Justin Sawon, *Generalized twistor spaces for hyperkähler manifolds*, *Journal of the London Mathematical Society* (2) **91** (2015), no. 2, 321–342, DOI: 10.1112/jlms/jdu074.
4. Justin Sawon, *On Lagrangian fibrations by Jacobians I*, *Journal für die reine und angewandte Mathematik* **701** (2015), 127–151, DOI: 10.1515/crelle-2013-0023.
5. Justin Sawon, *On Lagrangian fibrations by Jacobians II*, *Communications in Contemporary Mathematics*, Vol. 17, No. 5 (2015), 1450046 (23 pages), DOI: 10.1142/S0219199714500461.
6. Kelly McKinnie, Justin Sawon, Sho Tanimoto, and Anthony Várilly-Alvarado¹, *Brauer groups on K3 surfaces and arithmetic applications*, preprint [arXiv:1404.5460](https://arxiv.org/abs/1404.5460), to appear in the Conference Proceedings Volume of the AIM Workshop “Brauer groups and obstruction problems: moduli spaces and arithmetic” (Palo Alto, February–March 2014), 40 pages.
7. Justin Sawon, *Fibrations on four-folds with trivial canonical bundles*, *Geometriae Dedicata* **171** (2014), 93–117.
8. Justin Sawon, *Foliations on hypersurfaces in holomorphic symplectic manifolds*, *International Mathematics Research Notices* (2009), no. **23**, 4496–4545.
9. Justin Sawon, *Deformations of holomorphic Lagrangian fibrations*, *Proceedings of the American Mathematical Society* **137** (2009), 279–285.
10. Justin Sawon, *Twisted Fourier-Mukai transforms for holomorphic symplectic four-folds*, *Advances in Mathematics* **218** (2008), no. 3, 828–864.

¹In pure mathematics journals all authors are regarded as equal contributors; accordingly, authors’ names are always listed alphabetically.

11. Justin Sawon, *On the discriminant locus of a Lagrangian fibration*, *Mathematische Annalen* **341** (2008), no. 1, 201–221.
12. Justin Sawon, *Lagrangian fibrations on Hilbert schemes of points on K3 surfaces*, *Journal of Algebraic Geometry* **16** (2007), no. 3, 477–497.
13. Justin Sawon, *Perturbative expansion of Chern-Simons theory*, in *Interaction of finite-type and Gromov-Witten invariants*, Banff 2003, *Geometry and Topology Monographs* **8** (2006), 145–166.
14. Justin Sawon, *Derived equivalence of holomorphic symplectic manifolds*, in *Algebraic structures and moduli spaces: CRM Workshop, Montreal, July 2003*, *CRM Proceedings & Lecture Notes Series* **38** (2004), 193–211.
15. Justin Sawon, *Abelian fibred holomorphic symplectic manifolds*, *Turkish Jour. Math.* **27** (2003), no. 1, 197–230. (Proceedings of the Ninth Gökova Geometry-Topology Conference, May 2002.)
16. Justin Roberts and Justin Sawon, *Generalizations of Rozansky-Witten invariants*, in *Invariants of knots and 3-manifolds*, Kyoto 2001, *Geometry and Topology Monographs* **4** (2002), 263–279.
17. Michael Eastwood and Justin Sawon, *The Borel-Weil theorem for complex projective space*, in *Invitations to geometry and topology*, *Oxford Graduate Texts in Mathematics* (2002), 126–145.
18. Justin Sawon, *Topological quantum field theory and hyperkähler geometry*, *Turkish Jour. Math.* **25** (2001), no. 1, 169–194. (Proceedings of the Seventh Gökova Geometry-Topology Conference, June 2000.)
19. Justin Sawon, *A new weight system on chord diagrams via hyperkähler geometry*, in *Quaternionic structures in mathematics and physics*, Rome, September 1999, *World Scientific* (2001), 349–363.
20. Nigel Hitchin and Justin Sawon, *Curvature and characteristic numbers of hyperkähler manifolds*, *Duke Mathematical Journal* **106** (2001), no. 3, 599–615.
21. Justin Sawon, *The Rozansky-Witten invariants of hyperkähler manifolds*, *Proceedings of the 7th International Conference on Differential Geometry and Applications (Satellite Conference of the Berlin ICM)*, Brno, August 1998, (1999), 429–436.
22. Justin Sawon, *Homomorphisms of semiholonomic Verma modules: an exceptional case*, *Acta Mathematica Universitatis Comenianae* **68** (1999), no. 2, 257–269.

Dissertations (available online at www.unc.edu/~sawon)

1. Justin Sawon, *Rozansky-Witten invariants of hyperkähler manifolds*, PhD thesis, University of Cambridge (2000), 130 pages.
2. Justin Sawon, *Homomorphisms of semiholonomic Verma modules: an exceptional case*, MSc thesis, University of Adelaide (1996), 96 pages.

Other publications

1. Justin Sawon, 100 reviews for *Mathematical Reviews (MathSciNet)*, from 2000 to the present time.
2. Graham Hawkes (honors advisee of Justin Sawon), *Simple surfaces singularities, their resolutions, and construction of K3 surfaces*, *Rose-Hulman Undergraduate Mathematics Journal* **15** (2014), no. 1, 31–61.

3. Justin Sawon, main article on *Hyperkähler manifolds*, plus five brief articles on *The ADHM construction*, *Higgs bundles*, *The Hitchin system*, *Instanton moduli spaces*, and *Rozansky-Witten invariants* for the Modern Encyclopaedia of Mathematical Physics, to be published by Springer in 2014 (and published online by the Steklov Institute), 5 pages and 1 page each, respectively.
4. Justin Sawon, *When is a Lie algebra not a Lie algebra?*, in Proceedings of the IXth Oporto Meeting on Geometry, Topology and Physics, September 2000 (available at www.math.ist.utl.pt/~jmourao/om/omix/proc.html).
5. Nigel Hitchin (notes by Justin Sawon), *Riemann surfaces and integrable systems*, in Integrable systems: twistors, loop groups, and Riemann surfaces, Oxford Graduate Texts in Mathematics, Clarendon Press (1999), 11–52.

Invited conference talks

- *Generalised Geometry and Noncommutative Algebra*, University of Oxford, UK, December 2016
- *AMS Fall Southeastern Sectional Meeting*, North Carolina State University, USA, November 2016
- *Complex Algebraic Geometry*, UC San Diego, California, USA, January 2016
- *Workshop on Spectral Data for Higgs Bundles*, American Institute of Mathematics, San Jose, California, USA, September/October 2015
- *AMS Summer Institute on Algebraic Geometry*, University of Utah, Salt Lake City, USA, July 2015
- *Hyperkähler Saturday*, Higher School of Economics, Moscow, Russia, May 2015
- *Workshop on Hyperkähler Geometry*, KIAS, Seoul, Korea (two lectures), March 2015
- *AMS Fall Southeastern Sectional Meeting*, University of North Carolina at Greensboro, USA, November 2014 (two talks)
- *9th Pacific Rim Conference on Complex Geometry (Seoul ICM 2014 Satellite Conference)*, Gunsan, Korea, July/August 2014
- *Instanton counting : moduli spaces, integrable systems, and representation theory*, Lorentz Center, Leiden, Netherlands, June 2014 (one research and one expository talk)
- *Brill-Noether methods in the study of Calabi-Yau and hyperkähler manifolds*, Hausdorff Research Institute for Mathematics, Bonn, Germany, March 2014
- *Quiver varieties workshop*, Simons Center for Geometry and Physics, Stony Brook, New York, USA, October 2013
- *Workshop on Brauer groups and obstruction problems : moduli spaces and arithmetic*, American Institute of Mathematics, Palo Alto, California, USA, February 2013
- *The Interaction of Geometry and Representation Theory : Exploring new frontiers*, Erwin Schrödinger Institute, Vienna, Austria, September 2012
- *Workshop on algebraic geometry*, Università degli Studi di Milano, Milan, Italy, December 2011
- *International conference on moduli spaces and modular forms*, CIRM, Luminy, France, October 2011
- *Workshop on holomorphic symplectic varieties*, Courant Institute, NYU, New York, USA, June 2011
- *Shanks Workshop*, Vanderbilt University, Nashville, Tennessee, USA, September 2010
- *Generalized complex and holomorphic Poisson geometry*, Banff, Canada, April 2010
- *UM/UIC/OSU Weekend Algebraic Geometry Workshop*, Columbus, Ohio, USA, March 2010
- *AMS Fall Western Sectional Meeting*, University of New Mexico, USA, October 2007
- *Workshop on Fourier-Mukai and Nahm Transforms*, CRM, Université de Montréal, Canada, August 2007
- *Western Algebraic Geometry Seminar*, University of Washington, Seattle, USA, April 2007
- *Workshop on Holomorphic Symplectic Geometry*, KIAS, Seoul, Korea (four lectures), March 2007
- *Workshop on Geometry*, Chinese University of Hong Kong, December 2006
- *Workshop on Holomorphic Symplectic Varieties*, MPIM Bonn, Germany, May 2006
- *Mathematical Aspects of String Theory*, Kyoto, Japan, July 2004

- *Hyperkähler, Holomorphic Symplectic Manifolds, and Related Topics*, Gero, Japan, January 2004
- *The Interaction of Finite Type and Gromov-Witten Invariants*, Banff, Canada, November 2003
- *Complex Geometry*, Oberwolfach, Germany, August 2003
- *Workshop on Algebraic Structures and Moduli Spaces*, CRM, Université de Montréal, Canada, July 2003
- *Integrable Systems and Spectral Curves*, Université de Lille, France, June 2003
- *AMS Spring Eastern Sectional Meeting*, Courant Institute, NYU, New York, USA, April 2003
- *XVIIIth Annual Geometry Festival*, Duke University, USA, March 2003
- *Geometric Topology* (satellite conference of ICM 2002), Xi'an, China, August 2002
- *Ninth Gökova Geometry and Topology Conference*, Turkey, May/June 2002
- *Clay Spring School on Geometry and String Theory*, Isaac Newton Institute, Cambridge, UK, April 2002
- *Workshop on Quantum Topology*, Warwick, UK, March 2002
- *Invariants of Knots and 3-manifolds*, Kyoto, Japan, September 2001
- *Complex Geometry*, Oberwolfach, Germany, September 2001
- *New Interfaces between Geometry and Physics*, Miraflores, Madrid, Spain, May/June 2001
- *IXth Oporto Meeting on Geometry, Topology, and Physics*, Portugal, September/October 2000
- *Seventh Gökova Geometry and Topology Conference*, Turkey, May/June 2000
- *2nd Meeting on Quaternionic Structures in Mathematics and Physics*, Rome, September 1999
- *4th International Conference on Geometry and Applications*, Varna, Bulgaria, August 1999
- *Summer School on Invariants of Links and 3-manifolds*, Grenoble, France, June/July 1999
- *Differential Geometry and its Applications* (satellite of ICM 1998), Brno, Czech Republic, August 1998

Other conference presentations

- *International Congress of Mathematicians 2014*, Seoul, Korea, August 2014 (short communication)
- *1st Pacific Rim Mathematical Association (PRIMA) Congress*, University of NSW, Australia, July 2009
- *Conference on Algebraic Geometry*, Kinosaki, Japan, October 2008 (poster)
- *Vector Bundles on Algebraic Curves*, Bad Honnef, Germany, June 2007 (poster)
- *International Congress of Mathematicians 2002*, Beijing, China, August 2002 (short communication)
- *Géométrie Algébrique en Liberté VII*, Marseille, France, March 1999
- *International Congress of Mathematicians 1998*, Berlin, Germany, August 1998 (poster)

Invited lectures, seminars, and colloquia

- Rice University (colloquium), October 2016
- University of South Carolina (two lectures), Columbia, USA, February 2016
- Faculty of Mathematics (two lectures), Higher School of Economics, Moscow, Russia, May 2015
- University of Waterloo, Canada, July 2014
- University of Utrecht, Netherlands, June 2014
- University of Hannover, Germany, July 2013
- Faculty of Mathematics (three lectures), Higher School of Economics, Moscow, Russia, June 2013
- Erwin Schrödinger Institute, Vienna, Austria, May 2013
- Korea Institute for Advanced Studies (two lectures), Seoul, Korea, March 2013
- Penn State University, USA, January 2013
- University of Toronto (three lectures), Canada, May 2012
- Duke University, Durham, USA, January 2012
- Hausdorff Research Institute for Mathematics, Bonn, Germany, November 2011
- University of Utrecht, Netherlands, November 2011

- University of Oxford, UK, October 2011
- Università di Roma 1, Italy, October 2011
- University of California San Diego, USA, May 2011
- University of California Riverside, USA, May 2011
- Korea Institute for Advanced Studies, Seoul, Korea, May 2010
- Korea Advanced Institute of Science and Technology, Daejeon, Korea, May 2010
- University of Utah, USA, March 2010
- University of Georgia, Athens, USA, February 2010
- Duke University, Durham, USA, February 2010
- University of Sydney (colloquium and seminar), Australia, July 2009
- University of Adelaide (three lectures), Australia, June 2009
- State University of New York at Stony Brook, USA, March 2009
- University of North Carolina, Chapel Hill, USA, February 2009
- Duke University, Durham, USA, February 2009
- University of North Carolina, Chapel Hill, USA, April 2008
- Yonsei University, Seoul, Korea, April 2008
- Korea Institute for Advanced Studies, Seoul, Korea, March 2008
- University of Colorado (two lectures), Boulder, USA, May 2007
- University of Wisconsin, Madison, USA, May 2007
- Rice University, USA, February 2007
- University of Utah, USA, February 2007
- Chinese University of Hong Kong (five lectures), January 2007
- Humboldt University, Berlin, Germany, July 2006
- Köln University, Germany, June 2006
- Université Pierre-et-Marie-Curie, Paris 6, France, June 2006
- Texas A&M University, USA, March 2006
- Kansas State University, USA, February 2006
- Colorado State University, USA, February 2006
- Tokyo University, Japan, January 2006
- University of Illinois at Urbana-Champaign, USA, October 2005
- Johannes Gutenberg Universität, Mainz, Germany, June 2005
- Adelaide University, Australia, May 2005
- Louisiana State University, USA, February 2005
- Boston University, USA, February 2005
- University of California, Davis, USA, February 2005
- Kyushu University, Japan, July 2004
- Brown University, Providence, USA, March 2004
- University of Pennsylvania, USA, November 2003
- Université Paris 7, Jussieu, France, June 2003
- École Polytechnique (Besse seminar), France, June 2003
- Columbia University, New York, USA, February 2003
- Kyoto University, Japan, January 2003
- Köln University, Germany, May 2002
- Cambridge University, UK, May 2002
- Cardiff University, UK, March 2002
- University of California San Diego, USA, November 2001
- University of California Berkeley, USA, November 2001
- University of Birmingham (colloquium), May 2001
- Università di Roma 1, Italy, April 2001
- International Centre for Theoretical Physics, Trieste, Italy, April 2001

- Cambridge University, UK, March 2001
- Trinity College Dublin, Ireland, January 2001
- Edinburgh University, UK, February 2000
- University of Århus, Denmark, April 1999

Other seminars and talks

- two Graduate Mathematics Association talks and one undergraduate Math Club talk at UNC
- numerous internal seminars while employed at UNC, Colorado State University, Stony Brook University, and the University of Oxford
- regular participant at the UNC Mathematics Colloquium, Physically Inspired Mathematics Seminar, and Geometric Methods in Representation Theory Seminar

Teaching record

University of North Carolina (600-level and above are graduate courses)

Fall 2016	MATH676 Modules, linear algebra, and groups, 17 students MATH294 Problem solving seminar, 17 students (+30 auditors)
Spring 2016	MATH782 Differential geometry, 12 students MATH692H Honors thesis in Brauer groups, 1 student (Jon Aycock)
Fall 2015	MATH231 Calculus of functions of one variable I, 130 students MATH294 Problem solving seminar, 11 students (+17 auditors) MATH691H Honors research in quadratic forms, 1 student (Jon Aycock)
Spring 2015	MATH681 Introductory topology, 9 students
Fall 2014	MATH548 Combinatorial mathematics, 40 students MATH676 Modules, linear algebra, and groups, 11 students MATH294 Problem solving seminar, 13 students (+10 auditors) MATH692H Honors thesis in algebraic topology, 1 student (Marshall Lochbaum) MATH920 Graduate reading course in geometry, 1 student (Tim Adler)
Spring 2014	MATH381 Discrete mathematics, 42 students MATH578 Algebraic structures, 26 students
Fall 2013	MATH680 Geometry of curves and surfaces, 16 students MATH294 Problem solving seminar, 10 students (+10 auditors)
Spring 2013	MATH681 Introductory topology, 13 students MATH290 Undergraduate independent study in algebraic geometry, 1 student (Graham Hawkes) MATH994 Graduate reading course in complex geometry, 1 student (Sam Miller)
Fall 2012	MATH233 Calculus of functions of several variables (section 6), 41 students MATH381 Discrete mathematics (section 3), 35 students MATH295 Problem solving in mathematics, 7 students (+8 auditors) MATH296 Undergraduate reading course in algebraic geometry, 1 student (Graham Hawkes) MATH994 Graduate reading course in complex geometry, 1 student (Sam Miller)
Summer 2012	Undergraduate reading course in algebraic geometry, 1 student (Graham Hawkes) Graduate reading course in complex geometry, 1 student (Sam Miller)
Spring 2012	MATH381 Discrete mathematics (section 2), 37 students MATH578 Algebraic structures, 18 students MATH699 Reading course in Riemannian geometry, 2 students
Spring 2011	MATH782 Differential geometry, 12 students

- Fall 2010 MATH381 Discrete mathematics (section 2), 30 students
 MATH920 Reading course in complex geometry, 1 student (Rebecca Glover)
 MATH920 Reading course in moduli of vector bundles, 1 student (Ryan Kaliszewski)
- Spring 2010 MATH681 Introductory topology, 10 students
 MATH920 Reading course in symplectic geometry, 3 students

Colorado State University (500-level and above are graduate courses)

- Fall 2009 MATH369 Linear algebra (section 3)
 MATH676 Topics in Riemannian geometry
- Spring 2009 MATH670 Introduction to differentiable manifolds
 Independent study in moduli spaces (Olivia Dumitrescu)
- Fall 2008 MATH161 Calculus II (sections 4, 5, and 7)
- Spring 2008 MATH567 Abstract algebra II
- Fall 2007 MATH495 GRE preparation
 MATH566 Abstract algebra I
- Spring 2007 MATH369 Linear algebra (section 3)
- Fall 2006 MATH369 Linear algebra (section 1)
 MATH400D Topology
 Independent study in differential geometry (Byungsoo Kim)

SUNY at Stony Brook (500-level and above are graduate courses)

- Spring 2006 MAT 542 Complex analysis I
- Fall 2005 MAT 125 Calculus A (sections LEC1 and ELC5)
 Independent study in differential geometry (Greg Grinberg)
- Fall 2004 MAT 260 Problem solving in mathematics
 MAT 590 Problem seminar (comprehensive exam preparation)
 Independent study in twistor spaces (Mustafa Kalafat)
- Spring 2004 MAT 645 Topics in differential geometry (hyperkähler manifolds)
 Independent study in geometry of Lagrangian submanifolds (Ibrahim Unal)
 Independent study in ALE manifolds and singularities (Yu-Jen Shu)
- Fall 2003 MAT 123 Introduction to calculus
 MAT 590 Problem seminar (comprehensive exam preparation)
 Independent study in G_2 -manifolds (Ibrahim Unal)
 Independent study in self-dual 4-manifolds (Mustafa Kalafat)
- Spring 2003 MAT 305 Calculus IV (differential equations)
 MAT 569 Differential geometry II
- Fall 2002 MAT 566 Differential topology

PhD students supervised

- 2016–present Paul Kruse (expect graduation 2019) and Chen Shen (expected graduation 2020)
- 2013–present Sam Miller (expected graduation 2016)
- 2011–2013 Rebecca Glover, “Generalized twistor spaces for hyperkähler and quaternionic Kähler manifolds” (graduated May 2013, currently a tenure-track assistant professor at the University of St Thomas, St Paul, MN)

Masters students supervised

- 2014–present Yang Sun (expected graduation 2016)
2014 Cole Arendt, “Hyperbolic geometry and Mostow’s rigidity” (successfully defended summer 2014)

Undergraduate honors projects supervised

- 2015–2016 Jon Aycock, “The Brauer group of a field”
2013–2014 Marshall Lochbaum, “A lower bound for immersions of real Grassmannians”
2012–2013 Graham Hawkes, “Simple surface singularities, their resolutions, and construction of some K3 surfaces” (elected to Sigma Xi)

Other students mentored

- 2016 Calum O’Mara and Ami Zou, undergraduate participants in the Science and Math Achievement and Resourcefulness Track (SMART) summer program for underrepresented minority students in STEM disciplines

Grants

National Science Foundation CAREER award *Finiteness for hyperkähler manifolds*, \$450,003 (direct costs: \$304,706), sole P.I., 16.7% effort, July 2016–June 2021

National Science Foundation conference grant DMS-1547117 *Workshops on algebraic geometry and representation theory*, \$30,000 (direct costs: \$30,000), P.I.s Prakash Belkale and Justin Sawon, 0% effort, November 2015–October 2018

Simons Foundation collaboration grant *Topics in holomorphic symplectic and hyperkähler geometry*, \$35,000 (direct costs: \$30,000), sole P.I., 0% effort, September 2015–August 2020

National Science Foundation conference grant DMS-1446356 *Workshop on moduli spaces, derived geometry, and representation theory*, \$15,000 (direct costs: \$15,000), P.I.s Prakash Belkale, Shrawan Kumar, Justin Sawon, 0% effort, November 2014–October 2015

UNC Junior Faculty Development Award, *Derived categories*, \$7500 (direct costs: \$7,500), sole P.I., 0% effort, January–December 2013

National Science Foundation grant DMS-1206309 *Classification of Lagrangian fibrations*, \$150,629 (direct costs: \$103,584), sole P.I., 16.7% effort, July 2012–June 2015

UNC University Research Council small grant program, *Hyperkähler metrics and Lagrangian fibrations*, recipient of \$1000 grant (direct costs: \$1000), sole P.I., 0% effort, May 2012–April 2014

UNC University Research Council small grant program, *Mirror symmetry and deformations of generalized K3 surfaces*, recipient of \$2500 grant (direct costs: \$2500), sole P.I., 0% effort, May 2011–April 2013

Travel support from an NSF grant, \$1200 (direct costs: \$1200), to attend PRIMA2009 in Sydney, Australia, sole P.I., 0% effort, July 2009

American Mathematical Society travel grant, \$2000 (direct costs: \$2000), to attend ICM in Madrid, Spain, sole P.I., 0% effort, August 2006

National Science Foundation grant DMS-0305865 *Studies in Riemannian and complex geometry*, \$477,300 (direct costs: \$322,500), P.I.s: Mike Anderson and Claude LeBrun, postdoctoral associate: Justin Sawon, 16.7% effort, June 2003–May 2006

Professional service to discipline

Refereeing

Reviewer and panel member for the National Science Foundation, 2013, 2014, and twice in 2016

Reviewer of a proposal for the contest “Young Russian Mathematics”, 2015

External examiner for University of Waterloo PhD thesis defense (Jordan Hamilton), 2014

External reviewer for the Istituto Nazionale di Alta Matematica (INdAM) in Italy (of two applications for INdAM/Marie-Curie fellowships in mathematics), 2012

Reviewer for the Natural Sciences and Engineering Research Council of Canada (of two Discovery Grant proposals), 2011 and 2012

Referee for *Advances in Mathematics*, *Algebraic and Geometric Topology*, *Algebraic Geometry*, AMS books (the Student Mathematical Library series), *Annales de l’Institut Fourier*, *Annales scientifiques de l’École normale supérieure*, *Annales Polonici Mathematici*, *Bulletin of the London Mathematical Society*, *Central European Journal of Mathematics*, *Commentarii Mathematici Helvetici*, *Communications in Mathematical Physics*, *Comptes Rendus Mathématique*, *Duke Mathematical Journal*, *Geometric and Functional Analysis*, *Geometry and Topology*, *International Journal of Mathematics*, *International Mathematics Research Notices*, *Journal of Algebraic Geometry*, *Journal of the American Mathematical Society*, *Journal für die reine und angewandte Mathematik*, *Journal of Differential Geometry*, *Journal of the European Mathematical Society*, *Journal of Geometric Analysis*, *Journal of Geometry and Physics*, *Journal of the London Mathematical Society*, *Journal of Symplectic Geometry*, *Kyoto Journal of Mathematics*, *Letters in Mathematical Physics*, *Mathematical Proceedings of the Cambridge Philosophical Society*, *Mathematical Research Letters*, *Mathematische Zeitschrift*, *Monatshefte Mathematik*, *Topology*, *Turkish Journal of Mathematics*, and for various conference proceedings

Conferences organized

Workshop on symplectic varieties and geometric representation theory at UNC, Chapel Hill, USA (October 2016), see www.unc.edu/~sawon/UNCworkshop16.html

Workshop on new developments in moduli and Geometric Invariant Theory at UNC, Chapel Hill, USA (November 2015), see www.unc.edu/~sawon/UNCworkshop15.html

Workshop on moduli spaces, derived geometry, and geometric representation theory at UNC, Chapel Hill, USA (October–November 2014), see www.unc.edu/~sawon/UNCworkshop14.html

Workshop on hyperkähler geometry at the Simons Center for Geometry and Physics, Stony Brook, USA (October–November 2012), see scgp.stonybrook.edu/archives/3434

Advances in hyperkähler and holomorphic symplectic geometry at the Banff International Research Station, Alberta, Canada (March 2012), see www.birs.ca/events/2012/5-day-workshops/12w5126

Hyperkähler geometry and related topics at the Hausdorff Research Institute for Mathematics, Bonn, Germany (November–December 2011), see www.him.uni-bonn.de/events/

Western Algebraic Geometry Seminar (weekend conference with approx. 60 participants) at Colorado State University, USA (October 2007), see www.unc.edu/~sawon/wags07.html

Professional service to department/university

University of North Carolina

- 2015–present Director of Graduate Studies, Department of Mathematics
- 2013–present UNC Science/Study Abroad Working Group member
- 2012–present Faculty adviser for the UNC Math Club and Putnam competition team
- 2010–present Committee member/chair for the Geometry and Topology comprehensive exam
- 2016 Judge for UNC Academic Research Conference graduate student research talks
Judge for UNC Women in Science Symposium poster session
Committee member for master's thesis defense (David Mason)
- 2015–2016 Committee member for oral examinations and PhD thesis defenses (Ryo Moore, Cass Sherman)
- 2015 UNC Marshall Scholarship internal selection committee member
Internal reviewer and member of the UNC Internal Selection Committee for the Packard Fellowships in Science and Engineering
Committee member for master's thesis defense (Taylor Allison)
- 2012–2015 Department of Mathematics Graduate Committee member
- 2013–2014 Committee member for oral examinations and PhD thesis defenses (Michael Abel, Merrick Brown, Alexander Soibelman)
- 2012–13 Committee member for oral examinations and PhD thesis defenses (Ryan Kaliszewski, Andrea Overbay)
- 2012 Committee member for master's thesis defense (Mayukh Mukherjee)
Grader for the Algebra comprehensive exam
- 2010–2012 Judge for UNC's 6th, 7th, and 8th Annual Research Days
- 2010 Committee member for an undergraduate honors dissertation defense (Greg Howard)

Colorado State University

- 2007–2009 Department of Mathematics Undergraduate Committee member
Faculty adviser for the CSU Math Club
- 2006–2009 Coach for the CSU Putnam Competition team

SUNY at Stony Brook

- 2002–2006 Coorganizer of the Geometry and Topology Seminar
Organizer of the Mathematical Physics Learning Seminar
Departmental committee member for the Carnegie Initiative on the Doctorate program
Oral examination committee member (for five different graduate students)
- 2004 Coach for the Stony Brook Putnam Competition team

Outreach activities

- 2016 Judge for MAA Undergraduate Student Poster Session at the Joint Mathematics Meeting 2016, Seattle, WA
- 2015 Volunteer leading experiential learning experiences (three classes) for Project Uplift, an overnight experiential program for academically gifted rising high school seniors from diverse populations
- 2013–2015 Volunteer at UNC Science Expo, for school students
- 2014 Faculty adviser for ADMIRES: Assisting in Development and Mentoring an Innovative Research Experience in Science, an NSF program for 9th graders targeting first generation college-going, economically disadvantaged, and minorities in STEM fields
Faculty mentor for ARTS490 Visualizing science and DIY : The Magic of Making, a science and art collaboration
- 2013 Judge for THInC: Tar Heel Innovation Challenge, a high school science competition held at UNC-Chapel Hill
- 2012 Mentor for middle school student MarcAndrew Laurenvil
Local organizer for American Mathematics Contest 8 for middle school students
- 2007+2009 Judge for Mathcounts Middle School Mathematics Competition, northern Colorado chapter
- 2004 Mentor for high school student Neal Wadhwa
- 2000 Tutor at Sutton Trust Summer School, Oxford, a one-week programme, designed to encourage school students from disadvantaged backgrounds to apply to study at Oxford

Summer 2017 : MATH381 Discrete Mathematics

1 General information

Course information will be available both from the webpage www.unc.edu/~sawon/MATH381 and on Sakai.

- Program dates: Thursday 25th May (arrival) to Thursday 6th July (departure), approx. 6 weeks
- Lectures: Monday to Friday 9-11am (see below for schedule/syllabus)
- Instructor: Justin Sawon
- Email: sawon@email.unc.edu

2 Prerequisite

You must have earned a passing grade in MATH232 (or an equivalent) to register for this class.

3 Textbook

The textbook is “Discrete mathematics and its applications” by Kenneth H. Rosen, 7th edition, McGraw Hall, 2012. A paperback version customized for UNC is available from the university bookstore.

There are answers to the odd-numbered problems at the back of the textbook. For more detailed solutions to the odd-numbered problems, you may wish to consult the “Student’s solutions guide”, prepared by Jerrold Grossman, 7th edition, McGraw Hall, 2012.

4 Homework and exams

Homework problems will be assigned each day in class. You are encouraged to work together on these problems, but please write out your own solutions (due the following day). One of the main objectives of this course is for you to learn to communicate clearly using the language of mathematics. Some problems will ask for a proof, others will ask for a calculation, but in most cases you should formulate your statements using complete sentences.

There will be two midterms, held in class on Monday 12th June and Monday 26th June. The course will conclude with a final exam lasting two hours on Wednesday 5th July.

5 Grading scheme

Your overall score will be composed of homework (15%), midterms (25% each), and the final exam (35%). Corresponding grades are: A = 90-100, B = 80-89, C = 70-79, D = 60-69, F = 59 or below.

6 Schedule/syllabus

- Week 0
 - Thursday 25th May, travel day from USA
 - Friday 26th May, on-site orientations at UCR

- **Week 1 (29 May to 2 June) §1 Logic and proofs**
 - 1.1 Propositional logic
 - 1.3 Propositional equivalences
 - 1.4 Predicates and quantifiers
 - 1.5 Nested quantifiers
 - 1.6 Rules of inference
 - 1.7 Introductions to proofs
 - 1.8 Proof methods and strategy
- **Week 2 (5-9 June) §2 Sets and functions and §4 Number theory**
 - 2.1 Sets
 - 2.2 Set operations
 - 2.3 Functions
 - 4.1 Divisibility and modular arithmetic
 - 4.2 Integer representations and algorithms
 - 4.3 Primes and greatest common divisors
- **Week 3 (12-16 June) §5 Induction and §9 Relations**
 - Monday 12th June, **Midterm 1**
 - 5.1 Mathematical induction
 - 5.2 Strong induction
 - 9.1 Relations and their properties
 - 9.3 Representing relations
- **Week 4 (19-23 June) §6 Counting**
 - 9.5 Equivalence relations
 - 6.1 Basics of counting
 - 6.2 The pigeonhole principle
 - 6.3 Permutations and combinations
 - 6.4 Binomial coefficients
- **Week 5 (26-30 June) §7 Discrete probability**
 - Monday 26th June, **Midterm 2**
 - 6.5 Generalized permutations and combinations
 - 7.1 An introduction to discrete probability
 - 7.2 Probability theory
- **Week 6 (3-7 July)**
 - 7.3 Bayes's Theorem
 - Course review
 - Wednesday 5th July, **Final exam**
 - Thursday 6th July, travel day to USA

LE-201: B1-INTERMEDIO 1

Libro de texto base: Dicho y hecho. Español como Lengua Extranjera. Tomo 4

Intensidad: 45 horas

Horario:

Créditos: 3

Profesor(a):

1. DESCRIPCIÓN

En los cursos del nivel intermedio se refuerzan las destrezas adquiridas en los niveles iniciales por medio de actividades que incrementan la competencia comunicativa de los y las estudiantes. Al finalizar el nivel, quienes lo han cursado podrán expresarse con mucha soltura acerca de temas diversos de la vida cotidiana y de ámbitos más específicos. El curso va dirigido a estudiantes que posean conocimientos básicos de la lengua española (nivel A1-A2) que deseen mejorar sus habilidades de interacción oral, escucha, lectura y escritura.

2. OBJETIVO GENERAL

Desarrollar las habilidades comunicativas para la comprensión y producción de textos formales e informales de dificultad intermedia en la lengua española, situaciones de trabajo, de estudio o de la vida cotidiana, salud, deporte y cultura.

2.1 OBJETIVOS ESPECÍFICOS

1. Comprender textos orales y escritos sobre asuntos cotidianos relacionados con temas culturales, medio ambiente, salud y otros.
2. Producir párrafos narrativos y descriptivos sobre situaciones de la vida cotidiana.
3. Interactuar activamente en conversaciones expresando obligación, necesidad, conveniencia y opinando sobre temas de la vida cotidiana y algunos no cotidianos como la naturaleza, el deporte, los hábitos para conservar la salud y tradiciones culturales costarricenses.
4. Manifestar opiniones de apoyo y oposición mediante argumentaciones acerca de temas cotidianos.
5. Participar en discusiones y conversaciones preguntando sobre temas culturales, salud, tiempo libre y deporte.

6. Caracterizar individuos u objetos con matices subjetivos de forma escrita y oral.

3. CONTENIDOS

Se estudian los siguientes temas utilizando un enfoque que trabaje las diferentes habilidades comunicativas en el aula. Además, se trabajan los aspectos gramaticales paralelamente con los contenidos temáticos.

1. Los ecosistemas:
 - a. La fuerza de la naturaleza, el ser humano y la naturaleza, destrucción del hábitat.
 - b. Narraciones cortas en pasado: descripciones y eventos concretos.
 - c. Componente gramatical: Usos de pretérito y copretérito (repaso y nuevos usos), conjunción, seguir + gerundio.

2. Salud y bienestar:
 - a. Medicina tradicional, hábitos para conservar la salud, alimentación balanceada.
 - b. Juicios y opiniones personales.
 - c. Expresión de órdenes, obligaciones, necesidades y conveniencia.
 - d. Componente gramatical: presente de subjuntivo, oraciones impersonales con indicativo y subjuntivo, perífrasis: tener que + infinitivo, deber + infinitivo y hay que + infinitivo, repaso y nuevos usos de los pronombres complementarios, estructuras que inician por el complemento directo, el imperativo, oraciones condicionales en presente, a + infinitivo.

3. Deportes y tiempo libre:
 - a. El juego prehispánico, tiempo libre, deportes y dinero.
 - b. Expresiones complejas de opiniones, gustos, preferencias, intereses, agrado y desagrado.
 - c. Componente gramatical: verbos de objeto directo: gustas, interesas, etc., con sustantivos, infinitivo y presente de subjuntivo; verbos de voluntad con infinitivo y presente de subjuntivo; algunos adverbios de lugar y de modo.

4. Los caminos de los países latinoamericanos
 - a. Conociendo las provincias de Costa Rica, países vecinos, actividades típicas de cada país.
 - b. Caracterización de individuos y objetos con matices subjetivos.
 - c. Migraciones.
 - d. Componente gramatical: cuando + pretérito y copretérito, cuando + presente, cuando + presente de subjuntivo, oraciones adjetivas con indicativo y subjuntivo, marcadores conclusivos, oraciones subordinadas con verbos de opinión y percepción. Preposiciones por y para, adverbios terminados en -mente, diminutivos y aumentativos, usos particulares de los diminutivos, diferencias entre qué y cuál.

4. ACTIVIDADES

Las clases incluyen dos tipos de actividades: actividades en clase guiadas por la persona docente en las cuales se revisan distintos temas y estructuras funcionales para lograr los objetivos del curso; y trabajos desarrollados por el estudiantado: se realizan distintas tareas en clase y fuera de ella para aplicar los nuevos conocimientos adquiridos.

1. Discusiones sobre imágenes, situaciones, temas y elementos específicos.
2. Exposiciones formales sobre temas relacionados.
3. Lectura de textos académicos, literarios y periodísticos que se adapten al nivel.
4. Análisis y visualización de cortometrajes, películas y videos costarricenses.
5. Escucha de conversaciones cotidianas sobre anécdotas, anuncios publicitarios, boletines informativos sobre el clima, noticias radiales de diferente índole.
6. Prácticas dirigidas y de refuerzo.
7. Dramatizaciones y juego de roles.
8. Escritura de párrafos narrativos y descriptivos.
9. Entrevistas a hablantes de español y a compañeros.
10. Investigaciones en internet.
11. Lectura en voz alta y narraciones tradicionales.
12. Grabaciones de audio y video.
13. Trabajo en un blog temático.

5. METODOLOGÍA

En este curso se ejercitan las cuatro destrezas indispensables para una competencia comunicativa adecuada en la lengua meta: el habla, la lectura, la escritura y la escucha. El curso pretende proveer al estudiante de las herramientas para interactuar con textos orales y escritos sobre temas tanto cotidianos y familiares como temas culturales y sociales más especializados.

Todos los cursos del Programa de Español como Lengua Extranjera de la Universidad de Costa Rica utilizan una metodología holística, la cual se basa en que el aprendizaje es un proceso integral que debe considerar las necesidades y los objetivos individuales de los y las estudiantes en la construcción del conocimiento. Los aportes de los y las discentes son valorados e integrados en el curso.

En el curso se utiliza como base un libro de texto, el cual sirve como guía para los y las estudiantes en la progresión de los contenidos del curso. Asimismo, se integran materiales auténticos (textos y videos breves) sobre temáticas de interés para los y las estudiantes; estos se trabajan a partir de actividades diversas adaptadas al nivel de los y las discentes.

6. EVALUACIÓN

1. Creación (o participación) en un blog relacionado con los temas del curso.

-Presentación oral del blog y de los avances.	10%
-Versión final de las diferentes entradas del blog.	20%
2. Proyecto de investigación:

- Exposición oral del proyecto. 10%
- Informe escrito de la investigación. 20%
- 3. Presentación escrita y oral de un evento importante en la vida del estudiante. 10%
- 4. Creación de una pequeña obra de teatro grupal 10%
- 5. Tareas 10%
- 6. Participación activa en las dinámicas de la clase 10%

6.1. DESCRIPCIÓN DE LA EVALUACIÓN

ACTIVIDAD	DESCRIPCIÓN
1. Creación (o participación) en un blog relacionado con los temas del curso	Elaboración de un blog para que los estudiantes comenten o respondan preguntas hechas por el docente o los demás compañeros y, a la vez, se desarrollen espacios de opinión (dos), entre los compañeros, sobre los diferentes temas estudiados. Además, al final de cada semana cada estudiante posteará fotos y experiencias sobre Costa Rica.
2. Proyecto de investigación Exposición oral del proyecto Informe escrito de la investigación	Los estudiantes seleccionarán uno de los temas del curso y harán una investigación. Esta debe contar con los siguientes elementos: a. Introducción: el estudiante presentará de forma escrita y oral por qué escogió ese tema, la importancia de este. b. Desarrollo: los resultados que encontraron sobre su tema: los datos importantes y las información nueva. c. Conclusión: el estudiante explicará qué aprendió sobre su tema. Para realizar la investigación, el docente a cargo abrirá espacios durante la clase en los que los estudiantes puedan buscar información, consultar sobre dudas y resolver problemas que puedan enfrentarse. Asimismo, en estos momentos guiará a los estudiantes en la forma en la que deben presentar el trabajo, tanto la versión oral como la escrita. El trabajo de investigación se presenta oralmente dos días antes de terminar el curso y la versión escrita, un día antes. De modo que el docente pueda hacerle

	comentarios a las investigaciones, tomando como referencia la presentación oral, con el fin de que el estudiante mejore el informe escrito.
3. Presentación oral y escrita de un evento vivido por el estudiante	En clase, los estudiantes escribirán una situación que hayan vivido y que se relacione con las unidades 4 o 5 (Destinos turísticos a nivel mundial y Por los caminos de los países latinoamericanos, respectivamente). El docente deberá especificar que la narración escrita debe presentar: <ul style="list-style-type: none"> a. Fecha del evento b. Lugar c. Personas que estuvieron en la situación d. Introducción, desarrollo y conclusión.
4. Creación de una pequeña obra teatral grupal.	Grupalmente, se planificará un pequeño guion de una obra teatral a partir de los temas estudiados en clase y se presentará a los otros estudiantes de la clase o a otro de los grupos de español, según la cantidad de estudiantes de la clase.
5. Tareas	El docente asignará pequeñas prácticas para hacer en la casa. Se revisarán en clase. El puntaje se obtiene con la presentación.
6. Participación activa en las dinámicas de la clase	Este rubro se evalúa todos los días a partir de la participación y la iniciativa del estudiante durante la clase.

7. BIBLIOGRAFÍA RECOMENDADA

Barroso García, Carlos (1999). La importancia de las dramatizaciones en el aula de ELE: una propuesta concreta de trabajo en clase. En X Congreso Internacional de la ASELE. Nuevas Perspectivas en la Enseñanza del Español como Lengua Extranjera. Cádiz, España. Extraído de

Blenlloch Adsuara, Blanca. (2014). La lengua oral en el aula: una propuesta didáctica para trabajar la exposición oral. (Tesis de maestría en Formación de Profesor/a de Educación Secundaria Obligatoria y Bachillerato, Formación Profesional y Enseñanza de Idiomas, con énfasis en lengua y literatura en la enseñanza de idiomas. Universitat Jaume I. Castellón. Tomado de

De Mingo Gala, José A. (2010). La enseñanza de la conversación en el aula de ELE. *Revista de Didáctica Español como Lengua Extranjera*. Num. 10. Tomado de

Gutiérrez Haces, Rosario; Cárdenas Sosa, Claudia y Maciel Gaytán, Diana. (2014). *Dicho y hecho. Español como lengua extranjera*. Tomo 4. Universidad Nacional Autónoma de México, Centro de Enseñanza para Extranjeros: Editorial Literal.

Hermida, Asunción. (2012). Las grabaciones de clase como instrumento para facilitar la reflexión y autonomía del docente. En I Congreso Internacional Nebrija en Lingüística Aplicada a la Enseñanza de Lenguas. En camino hacia el plurilingüismo. Madrid, España. Tomado de

Nogueroles López, Marta. Actividades para desarrollar la comprensión auditiva y audiovisual en el aula de ELE. EN III Jornada de Formación de Profesores de E/LE en China. Integración de destrezas comunicativas en el aula: dificultades y propuestas de aplicación. Pekín, China. Tomado de

Vargas Venegas, Genara (2008). Desarrollo de la fluidez oral en ELE mediante los periódicos, las canciones, las películas y los juegos. (Memoria de la maestría en Formación de Profesores de Español como Lengua Extranjera). León, España: Universidad de León.

LE-202: B2.1-INTERMEDIO 2

Libro de texto base: Dicho y hecho. Español como Lengua Extranjera. Tomo 5

Intensidad: 45 horas

Horario:

Créditos: 3

Profesor(a):

1. DESCRIPCIÓN

En los cursos del nivel intermedio se refuerzan las destrezas adquiridas en los niveles iniciales por medio de distintas actividades que incrementarán su competencia comunicativa. Al finalizar el nivel quienes lo han cursado podrán expresarse con mucha soltura acerca de temas diversos de la vida cotidiana y de ámbitos más específicos. El curso B2.1 va dirigido a estudiantes que posean conocimientos intermedios de la lengua española (nivel B1) que deseen mejorar sus habilidades de interacción oral, escucha, lectura y escritura.

2. OBJETIVO GENERAL

Desarrollar las habilidades comunicativas para la comprensión y producción de textos -tanto orales como escritos- más elaborados en la lengua española asociados a situaciones cotidianas y a temas más complejos como: intercambio cultural; sociedad, familia, educación; opiniones y reportes de lo dicho por otras personas; el trabajo y su relación con la migración, las mujeres y los jóvenes; cine latinoamericano.

2.1 OBJETIVOS ESPECÍFICOS

1. Referirse a acciones y estados que se relacionan con el pasado y con el presente.
2. Relatar hechos que sucedieron en diferentes momentos en el pasado y contar anécdotas.
3. Expresar y responder reclamos y quejas.
4. Expresar expectativas y deseos en el pasado, o con relación al presente y al futuro.
5. Expresar consecuencias consideradas como reales o posibles.
6. Narrar historias utilizando tanto el discurso directo como el indirecto.
7. Expresar juicios valorativos de manera impersonal y expresar estados subjetivos de agrado/desagrado/molestia/disgusto, etc.
8. Caracterizar sujetos, objetos y situaciones, lugares momentos y maneras.
9. Expresar condiciones reales e hipotéticas.
10. Formular suposiciones y conjeturas referidas al presente.

3. CONTENIDOS

Se trabajan las distintas habilidades comunicativas y se revisan, analizan y practican las estrategias discursivas, verbales y escritas, presentes en las siguientes situaciones:

1. De viajes, historias y anécdotas
 - a. Culturas en contacto
 - b. Historias y personajes
 - c. Opiniones y anécdotas
 - d. Componente gramatical: antepresente de indicativo; adverbios ya, todavía, nunca + antepresente / + antecopretérito; antecopretérito de indicativo; uso de: durante/en, mediante/con, según/en opinión de; formación y uso de lo + adjetivo/adverbio: lo bueno, lo malo, lo interesante; frases adverbiales de modo con a: al horno, a la francesa, a máquina, etc.

2. Sociedad, familia y educación
 - a. Ver, oír, sentir, pensar, creer
 - b. Valores, deseos y experiencias sociales
 - c. Experiencias escolares y domésticas
 - d. Componente gramatical: verbos de percepción sensibles; verbos de opinión y de duda; uso de indicativo y subjuntivo con mientras más..., más; mientras más..., menos, etcétera.

3. Lo que dicen los demás
 - a. Del estilo directo al estilo indirecto
 - b. Conocemos y opinamos sobre el mundo
 - c. Lo que nos encantaba o desagradaba
 - d. Componente gramatical: verbos de lengua: decir, mencionar, afirmar, negar; verbos de voluntad: pedir, sugerir, prometer; vocabulario relacionado con el tema de las emociones: aburrir, agradar, alegrar, molestar, asombrar, apenar, asustar, sorprender, chocar, interesar, divertir, doler, emocionar, encantar, extrañar, preocupar...

4. El mundo laboral
 - a. Trabajo y migración
 - b. Las mujeres y el trabajo
 - c. Los jóvenes y el empleo
 - d. Componente gramatical: pronombres relativos que, quien; pronombres relativos el, la, los, las / que; oraciones adjetivas con indicativo y subjuntivo en presente y pretérito; pronombre relativo complejo: lo + que; oraciones enfáticas: me molesta que te quedes callada → lo que me molesta es que te quedes callada; adverbio relativo cuando con indicativo y presente de subjuntivo; antefuturo.

5. Experiencias de película
 - a. El cine y las decisiones cotidianas
 - b. Decisiones virtuales
 - c. Escenarios posibles

- d. Oraciones condicionales posibles o “reales”: Si + V1 en presente de indicativo, V2 en presente, en futuro (perifrástico) o en imperativo; uso de las perífrasis verbales ponerse a y echarse a; oraciones condicionales hipotéticas o improbables; si + V1 en pretérito del subjuntivo, V2 en pospretérito; algunas variantes mexicanas del español; conjeturas y suposiciones referidas al presente: presente de deber o haber + de + infinitivo; vebo en futuro.

4. ACTIVIDADES

1. Hacer entrevistas a hablantes nativos para investigar acerca de diversos temas de interés.
2. Investigar sobre personajes históricos costarricenses y extranjeros.
3. Relatar y escribir anécdotas.
4. Participar en foros, mesas redondas y debates.
5. Elaborar relatos a partir de diálogos.
6. Escribir artículos con citas y elaborar informes respecto a temas de la realidad social costarricense.
7. Análisis de artículos de periódicos, revistas o libros, así como de películas y espectáculos artísticos.
8. Investigar sobre costarriqueñismos.

5. METODOLOGÍA

En este curso los contenidos se estudiarán y practicarán por medio de actividades en las que los estudiantes tengan la oportunidad de utilizar lo aprendido en clase dentro contextos en los que se resalte la relevancia de los conocimientos adquiridos. Por esto, el profesor creará situaciones de la vida real para que los alumnos puedan comprender la función y utilidad de lo estudiado durante el curso.

6. EVALUACIÓN

1. Trabajo de investigación	20%
3. Exposición formal	20%
4. Actividad grupal (organización de foro, debate, mesa redonda, panel, etc.)	20%
5. Entrevista a un hablante nativo	10%
6. Tareas	10%
7. Participación en actividades en clase	20%

6.1 DESCRIPCIÓN DE LA EVALUACIÓN

ACTIVIDAD	DESCRIPCIÓN
1. Trabajo de investigación	Los estudiantes tendrán dos semanas de tiempo para realizar una investigación acerca de un tema de interés personal relacionado a la cultura costarricense. Dos semanas antes del final del curso, tendrán que informar cuál es el tema que desean investigar y por qué. Una vez seleccionado el tema, el profesor destinará un espacio particular durante las clases para que los alumnos aclaren dudas con respecto a su investigación o la elaboración del documento. El antepenúltimo día de clases los alumnos tendrán que presentar de forma oral su investigación, el profesor realizará correcciones y comentarios que después tendrán que ser incluidos en la versión final escrita del trabajo.
2. Exposición formal	Cada estudiante selecciona un tema de interés relacionado a los temas vistos en clase y elabora una exposición de 10 minutos para sus compañeros. Esta exposición debe tener introducción, desarrollo y conclusión y además debe estar diseñada de forma que se pueda generar una breve discusión en clase a partir de ella.
3. Actividad grupal (organización de foro, debate, mesa redonda, panel, etc.)	Los estudiantes seleccionan un tema de discusión que esté en relación con los aspectos culturales y sociales estudiados en el curso.
4. Entrevista a un hablante nativo	Los estudiantes, en parejas (o individualmente), deben entrevistar a un hablante nativo sobre un tema cultural relacionado con Costa Rica. Una vez que terminen de entrevistar a la persona costarricense, le dan la oportunidad al hablante nativo de que los entreviste a ellos sobre un tema cultural de su país. En la clase, presentan de forma oral los resultados de estas entrevistas. Para ayudarse, los estudiantes pueden grabar las entrevistas en audio y presentar algunos segmentos en clase.
5. Tareas	Durante el curso se asignarán diversas tareas según sea necesario, con el fin de profundizar en los distintos aspectos en los que se considere necesario.
6. Participación en actividades en clase	Este rubro se evalúa a partir del interés que el estudiante muestra por efectuar las actividades en clase.

7. BIBLIOGRAFÍA RECOMENDADA

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