Review of Graduate Faculty Status: Background & Timeline

Faculty Handbook, p92: "Additionally, every five years, department chairpersons are asked to verify that each member of the graduate faculty has been actively involved in decisions affecting graduate education at the departmental level and has taught at least one 600- or 700- level course or two 500-level classes with graduate students enrolled or has supervised graduate student research, graduate independent studies, etc., and has maintained a record of active scholarship."

As the last review of graduate faculty status occurred in Spring 2013, a similar review will be conducted during Spring 2018 in conjunction with the annual performance evaluation process.

January 31: Graduate Faculty complete and submit the attached form to the department chair (Faculty reports are due for accomplishments and contributions of the previous year.)
February 20: Department chair submits recommendations to the college dean
March 20: College dean submits recommendations to Dean of Graduate Studies
April 26: Dean of Graduate Studies makes a renewal determination and notifies Graduate Council of any changes in graduate faculty status
By end of Spring 2018 semester: Faculty notified of graduate faculty status

Review of Graduate Faculty Status: Activity Report

Summarize activity for calendar years 2013-2017

Name: Haohao Wang **Department:** Mathematics

Evidence of active involvement in decisions affecting graduate education at the departmental level (2013-2017)

- GA/TA and UTA Evaluator (Fall 2013 - Spring 2014, Fall 2016 – Present)
  I observed and write the class visitation evaluation for the Graduate Assistants Jennifer O'Day, Amanda Fox, Sarah Cockrell, and Amy Cunningham. The evaluation was submitted to Dr. Daly, the graduate coordinator.
- Graduate Program Committee (Fall 2013, Fall 2014- Spring 2017).
  In 2014-2016, to increase the enrollment, we redesigned the program, changed the course with focus on application and computation to gear the program toward industry. We revised our course rotation, updated our syllabi, and created new courses. In addition, we selected a list of the possible industries around the Southeast campus within about 100 miles radius. We contacted these industries to see the possibilities of collaborating with them. I was also assigned to investigate SIUC graduate program to compare with our graduate program. I submitted my report to Dr. Daly, the graduate coordinator.

Graduate courses taught (2013-2017)

Spring 2013	Spring 2013, MA633	Differential Geometry
Spring 2014	MA545	Linear Algebra &Matrices
Fall 2014	MA694	Master's Thesis with Irina Stallion

Graduate student research, independent study, or creative activity supervised (2013-2017)

I served as an Advisor and the Chair of the Master's Thesis Committee, and supervised a graduate student research which resulted in a peer-reviewed publication:

- Irina Stallion, graduated Fall 2014. The thesis is entitled "Solving the Orthogonal Projection Problem via Groebner Bases". The thesis utilizes the method in algebraic geometry and commutative algebra to solve the orthogonal projection problem. This problem was studied by many people, and the thesis produced the first known method to compute the exact solution.
- Irina Stallion, Symbolic Computation via Groebner Basis, *Journal of Engineering Research and Applications*, Vol. 4, Issue 10 (Part 4) October 2014, 79-83.

Publications, conference presentations, and/or creative activities (2013-2017)

Peer-reviewed publications:

- Quaternion Rational Surfaces, (with J. Hoffman, X. Jia), Journal of Commutative Algebra, 2017, to appear.
- Syzygies for Translational surfaces, (with R. Goldman), Journal of Symbolic computation, 2017, to appear.
- Implicitizing Ruled Translational Surface, (with R. Goldman), Computer Aided Geometric Design, 2017, to appear.

- *Commutative Algebra: An introduction,* (with J. Hoffman, X. Jia), Mercury Learning & Information, Dulles, Virginia, Boston, Massachusetts, new Delhi, 2016. (ISBN: 978-1-944534-61-8)
- Genus 3 curves whose Jacobians have endomorphisms by $Q(\zeta_7 + \overline{\zeta_7})$ (with J. Hoffman, Z. Liang, Y. Sakai), Journal of Symbolic Computation, Vol. 74 (2016) 561-577.
- Note on Regularity of Radicals of ideals, (with J. Hoffman), *International Electronic Journal of Algebra,* Vol. 17 (2015), 154-160.
- A Note on Quadratically Parametrized Surfaces (with J. W. Hoffman), *Algebra Colloquium,* Vol. 21 (2014), 461-476.
- Intersections of Rational Parametrized Plane Curves, (with M. Tesemma), *European journal of Pure and Applied Mathematics*, Vol. 7, No. 2 (2014), 191-200.
- Real Space Quadrics and u-Bases (with J. W. Hoffman), *Journal of Egyptian Mathematics Society*, Vol. 21 (2013), 169-174.
- Inversion of Rational Surfaces Parameterizable by Quadratics (with M. Tesemma), *International Electronic Journal of Algebra*, Vol. 13 (2013), 69-75.
- 7-gons and genus three hyperelliptic curves (with J. W. Hoffman), *RACSAM - Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales. Serie A. Matemáticas,* Vol. 107(2013), 35-52.
- Multimedia and Student Performance in Online Mathematics Learning (with G. Pan, M. Tikoo and J. Wojdylo*), Proceedings of the International Conference on education and New Developments*, 2013, 165-169.

Conference Presentations:

- "*Quaternion Surfaces*", Computational Algebra and Geometric Modeling workshop, Banff International Research Station for Mathematical Innovation and Discovery (BIRS), Casa Matemática Oaxaca (CMO), in Mexico, August 7-12, 2016. (Invited, and received a certificate).
- "*Implicit Equations and Rees Algebra*", AMS Joint Mathematics Meeting, Seattle, Washington, January 6-9, 2016.
- "*Implicitization of Rational Curves and Surfaces*", the 8th International Congress on Industrial and Applied Mathematics (ICIAM), Beijing, China, August 13, 2015.
- "*Open Educational Resource in Online Mathematics Learning*", 17th International Conference on Higher Education, London, United Kingdom, May 26, 2015.
- "*Groebner Basis, Resultants, Syzygies, and Approximation Complex*", MAA MO Section Meeting, University of Missouri Science and Technology, Rolla, MO, March 28, 2015.
- "*Some Algebra and Geometry Characteristics of Rational Space Curves of Type (1,1,d-2)*", ESCO 2014, 4th European Seminar on Computing, Pilsen, Czech Republic, June 19, 2014.
- "*Regularity of Radical Ideals*", MAA MO Section Meeting, Saint Louis University, St. Louis, MO March 28, 2014.
- *"Set-Theoretic Generators of Rational Space Curves",* AMS Central Section Meeting, Washington University in St. Louis, St. Louis, MO, October 19, 2013.
- "*Minimal generators for the Rees algebra associated to the quadratically parametrized surfaces", AMS* Southeastern Section Meeting, University of Louisville, Louisville, KY, October 5, 2013.
- *"Multimedia and Student Performance in Online Mathematics Learning",* the International Conference on Education and New Developments 2013, Lisbon, Portugal, June 1-3, 2013.
- "*Rees Algebra of Quadratically Parametrized Surfaces*", AMS Southeastern Section Meeting, University of Mississippi, Oxford, MS, March 1-3, 2013.

Review of Graduate Faculty Status: Recommendation Form

Name: Department:

Department Chair's Recommendation

Actively involved in decisions affecting graduate education at the departmental level

□ Yes □ No

Taught at least one 600- or 700- level course or two 500-level classes with graduate students enrolled – or supervised graduate student research, independent study, or creative activity

□ Yes □ No

Maintained a record of active scholarship

□ Yes □ No

Overall Recommendation

□ Retain Graduate Faculty Status □ Does not retain Graduate Faculty Status

_____ _____

Signature Date

College Dean's Recommendation

□ Retain Graduate Faculty Status □ Does not retain Graduate Faculty Status

_____ _____

Signature Date

Dean of Graduate Studies Determination

□ Retain Graduate Faculty Status □ Does not retain Graduate Faculty Status

_____ _____

Signature Date