Ioulia Rytikova, Ph.D.
Associate Professor
Email: irytikov@gmu.edu
Web: http://mason.gmu.edu/~irytikov/

5400 Nguyen Engineering Building, MS: 1G8
George Mason University
Fairfax, VA 22030

Education

- **National University of Science and Technology**
  Ph.D. in Automated Control Systems
- **National University of Science and Technology**
  BS/MS in Automated Control Systems Engineering and Information Processing
  Diploma with honors

Experience

- **Department of Information Sciences and Technology, George Mason University, Fairfax, VA**
  Associate Chair for Graduate Studies*, 2016 - present*
  Associate Professor*, 2012 - present*
  Assistant Professor, *2007 – 2012*
- **Personalized Learning in Applied IT Laboratory, George Mason University, Fairfax, VA**
  Founding Co-Director*, 2013 - present*
- **Department of Applied Information Technology and Department of Applied and Engineering Statistics, George Mason University, Fairfax, VA**
  Assistant Professor (joint appointment), *2003 - 2007*
  Instructional Faculty (joint appointment), *Spring 2003*
  Adjunct Professor*, Fall 2002*
- **School of Business and Economics, Lynchburg College, Lynchburg, VA**
  Instructional Faculty*, 2001 – 2002*

Awards and Recognitions

- **GMU Presidential Award for Faculty Excellence**,   2017
  Category *Excellence in Teaching* (nominated)
- **VCU School of Nursing Recognition Award** for the Doris. B. Yingling   2016
  Lectureship Invited Presentation "*Big Data Educational Ecosystem*"
- **GMU Center For Teaching and Faculty Excellence**   2014
  First School of Engineering faculty member selected to teach in the
  Active Learning Technology classroom (top strategic, high-impact, technology-rich
  learning environment)
- **GMU Distance Education Award** (nominated)   2012
- **GMU Volgenau School of Engineering Outstanding Teaching Award**   2008
- **Best PhD Dissertation Award** (1 per year)
- **BS/MS Diploma with honors** (1 per graduation year)

Sponsored Projects

- **2018 Department of Defense Cyber Scholarship Program**
  - Participants: Sushil Jajodia (PI), Massimiliano Albanese (Co-PI), **Ioulia Rytikova** (Co-PI), Khondka Islam (Co-PI)
  - Department of Defense
  - Project Budget: $159,612
  - Performance Period: 09/15/2018 - 09/15/2019
- **2017 Department of Defense Cyber Scholarship Program**
  - Participants: Sushil Jajodia (PI), Massimiliano Albanese (Co-PI), **Ioulia Rytikova** (Co-PI)

- o Department of Defense
- o Project Budget: $63,112
- o Performance Period: 09/14/2017 - 09/13/2018
- **Incorporating Research into Undergraduate IT Curriculum**
  - o Participants: **Ioulia Rytikova** (Project Leader), Mihai Boicu, Setareh Rafatirad
  - o Sponsor: OSCAR, GMU
  - o Project Budget: $32,800
  - o Performance Period: Summer, 2016 – Summer, 2018

Curriculum Development

Summary
- Developed/Substantially redesigned programs: **10**
- Developed/Substantially redesigned courses: **15** (**6** graduate; **9** undergraduate)
- Developed online courses: **9** (**3** graduate; **6** undergraduate)

Developed/Substantially Redesigned Programs

MS in AIT: Substantially redesigned (project leader)	2016 - 2017
PhD in IT, Information Sciences and Technology concentration: Substantially redesigned (project leader)	2016 - 2017
MS in Data Analytics Engineering, Applied Analytics concentration: Substantially redesigned (project leader)	2016 - 2017
Accelerated MS in AIT: Substantially re-designed (project leader)	2016 - 2017
Online MS AIT, Data Analytics and Intelligence concentration: Contributed to the development (designer and developer)	2015 - 2016
Online BS IT, Database Technologies and Programming concentration and Health Information Technology concentration: (designer and developer)	2013 - 2015
BS IT: Health Information Technologies concentration Created new (designer and developer)	2013 - 2014
Intelligence Community Program: Contributed to the development (developer)	2010 - 2011
School of Engineering Interdisciplinary Certificate "E-manufacturing": Contributed to the development (designer and developer)	2009 - 2010
BS IT: Database Technologies and Programming concentration (DB part) Created new (designer and developer)	2005 - 2009

Developed/Substantially Redesigned Courses
Graduate Courses

AIT 614: Big Data Essentials (**new**)	2016
AIT 524: Database Management Essentials (**new**)	2016
AIT 690: Advanced Topics in AIT/Data Engineering Emerging Technologies (**new**)	2014
ECE 590: Database Structures for Industrial Manufacturing (**new**)	2009
IT 508: Programming Languages for Manufacturing (**new**)	2009
STAT 530: Mathematical Methods for Statistics and Engineering	2003

Undergraduate Courses

IT 194: Review of Database Fundamentals (**new**)	2015
IT 324: Health Information Technology Fundamentals (**new**)	2014
IT 322: Health Data Challenges (**new**)	2013
IT 344: Information Storage and Management Technologies (**new**)	2010
IT 314: Database Programming (**new**)	2006
IT 414: Database Administration	2005
IT 214: Database Fundamentals	2005

• STAT/IT 250: Introduction to Statistics I	2005
• STAT 344: Probability and Statistics for Engineers and Scientists I	2003

Distance Education Development
Graduate Courses

• AIT 614: Big Data Essentials	2016
• AIT 524: Database Management Essentials	2016
• AIT 690: Advanced Topics in AIT/Data Engineering Emerging Technologies	2014

Undergraduate Courses

• IT 194: Review of Database Fundamentals	2015
• IT 324: Health Information Technology Fundamentals	2014
• IT 322: Health Data Challenges	2014
• IT 314: Database Programming	2013
• IT 214: Database Fundamentals	2013
• IT 344: Information Storage and Management Technologies	2010

Teaching

Most courses consistently receive top student ratings of instruction (on average 4.8/5.0 or above).

Graduate Courses

• AIT 796: Directed Reading and Research	2018
• AIT 524: Database Management Essentials (30 students)	2016 - current
• AIT 690: Advanced Topics in AIT/Data Engineering Emerging Technologies (25 students)	2015 - 2016
• AIT 699: Research Capstone (1 student)	Spring 2016
• ECE 590: Database Structures for Industrial Manufacturing (20 students)	Spring 2008
• IT 508: Programming Languages for Manufacturing (15 students)	Summer 2008
• STAT 530: Mathematical Methods for Statistics and Engineering (20 students)	Fall 2003

Undergraduate Courses

• IT 214: Database Fundamentals (40 students)	2005 - current
• IT 194: Review of Database Fundamentals (25 students)	2014 - current
• IT 103: Introduction to Computing (60 students)	2012 - 2016
• IT 322: Health Data Challenges (10 students)	Spring 2014
• IT 314: Database Programing (30 students)	2006 - 2013
• IT 414: Advanced Database Management (20 students)	2005 – 2006
• STAT 344: Probability and Statistics for Engineers and Scientists I (80 students)	2003 – 2006
• STAT/IT 250: Introduction to Statistics I (120 students)	2002 - 2007
• DESC 210: Statistical Analysis for Management (80 students)	Fall 2002
• BUAD 301/302: Integrated Business Principles (50 students)	2001 - 2002
• BUAD 241: Business Statistics (40 students)	2001 - 2002

Adjunct Faculty Mentoring

Adjunct Faculty
- Over twenty five adjunct faculty (since 2005)

Advising

Current PhD Students
- Stephanie Olson (PhD, Information Technology; Co-advisor: Mihai Boicu)

Dissertation Committee
<u>2015-current</u>
- Sarah F. Kabli (Electrical & Computer Engineering; Advisor: Jim Jones)
- Ehab Abozinadah (Electrical & Computer Engineering; Advisor: Jim Jones)

<u>2015-2017</u>
- Ling Dang (Computer Science; Advisor: Jeff Offutt)

Student Advising
- PhD, MS AIT and BS IT students (one of the most often requested advisors at IST)

Service

Departmental Level
- Chair, Department of IST Tenure-track/Tenured Faculty Search Committee (2019)
- Member, Department of IST Tenure-track/Tenured Faculty Search Committee (2018)
- Chair, Department of IST Tenure-track/Tenured Faculty Search Committee (2017)
- Chair, Department of IST Tenure-track/Tenured Faculty Search Committee (2016)
- Member, Department of IST Term Faculty Search Committee (2016)
- OSCAR Representative for IST (2015 – present)
- IST Library Liaison (2015 – present)
- Coordinator, Department of IST ABET Committee (2008 - present)
- Co-Chair, Department of AIT Adjunct Search Committee (2014)
- Member, Department of AIT Distance Education Committee (2013 - 2014)
- Member, NVCC Articulation Committee (2008 - current)
- Member, Department of AIT Tenured Faculty Search Committee (2013)
- Member, Department of AIT Term Faculty Search Committee (2012)
- Member, Department of Statistics: Developing QR Assessment Testing (2008)
- Member, Department of Statistics Faculty Search Position (2006&2008)

School Level
- Member, VSE Computing Resources Linux and Database Administrator Search Committee (2017)
- Member, VSE Graduate Studies Committee (2016 – current)
- Member, MS Data Analytics Engineering Program Steering Committee (2016 – current)
- Member, Department of Bioengineering Faculty Search Committee (2010)

University Level
- Member, GMU Center of Teaching and Faculty Excellence (CTFE) Active Learning Technology Group (2013 – present)
- Member, GMU Distance Education Council (2015 - present)
- Member, Teaching Inquiry Group (2015 – present)
- Member, Learning Analytics Focus Group (2015 – 2016)
- Member, Center for Global Studies, Global Collaborative Classroom Initiative Committee (2015)
- Member, Distance Education (DE) Advisory Group (2012 – 2013)
- Member, GMU Cross-Disciplinary Committee (2008)

Professional

Panel Member
- Oracle GMU Big Data Symposium 2016

Professional Memberships
- Member, Council on Undergraduate Research (CUR)
- Member, The Virginia Society for Technology in Education (VSTE)
- Member, Special Interest Group for Information Technology Education (ACM/SIGITE)

Invited Talks
- **I. Rytikova**. Advances in the Cognitive and Learning Sciences and Digital Learning. Presented at a two-week professional development program "*Life-Long Learning in the Digital University of the 21st Century*" organized by American Councils for International Education, Higher Education Programs, Washington, DC, November 25 - December 8, 2017
- **I. Rytikova**. Re-Engaging/Re-Energizing Your Students. Presented at a seminar series "*Faculty Conversations about Teaching"* organized by the Office of Distance Education and Center for Teaching & Faculty Excellence (CTFE), George Mason University, Fairfax, VA, March 9, 2017
- **I. Rytikova**. Big Data Educational Ecosystem. Presented at the *Doris. B. Yingling Lectureship* series, VCU School of Nursing, Virginia Commonwealth University, Richmond, VA, May 19, 2016
- **I. Rytikova**. Is It All Just About Feedback? Presented at a monthly seminar series "*Faculty Development Lunch and Learn: Knowing what your students are learning"* event organized by the Office of Distance Education, Center for Teaching & Faculty Excellence (CTFE), and Learning Support Services, George Mason University, Fairfax, VA, April 8, 2015
- **I. Rytikova**, M. Boicu. Designing Active Learning Experience for Undergraduate Students. Presented at a seminar series "*Discipline Based Education Research (DBER)"*, STEM Accelerated program, George Mason University, Fairfax, VA, September 30, 2014
- **I. Rytikova**. Big Data in Higher Education: Developing a Student Profile. Presented at the workshop "*Advancing Engineering Education"*, National University of Science and Technology, Moscow, Russia, January 10, 2014

Presentations
- **I. Rytikova**, Personalizing Students' Learning Experience Through Open Educational Resources. Presented at the *1st Open VA webinar*, Tidewater Community College, Chesapeake, Virginia, April 15, 2016
- **I. Rytikova**, Big Data in Healthcare: Challenges and Opportunities. Presented at the *2016 Oracle GMU Big Data Symposium* "*Breakthroughs in Big Data Analytics in the Public Sector"*, George Mason University, Fairfax, Virginia, January 7, 2016
  https://www.youtube.com/watch?v=oyInthIWCyE
- **I. Rytikova**, M. Boicu. Learning Is Fun! Wait … STEM Learning? Presented at the *2015 Innovations in Teaching & Learning (ITL) conference,* "*The Science of Learning: Using Research to Improve Teaching*", George Mason University, Fairfax, Virginia, September 18, 2015
- **I. Rytikova**. Making It All Work. Presented at the *National Forum on Active Learning Classrooms*, Minneapolis, Minnesota, August 5 - 7, 2015
- **I. Rytikova**. Classroom Management in Active Learning Classrooms. Presented at the workshop "*Making the Most of Your Active Learning Classroom*" organized by the Center for Teaching & Faculty Excellence (CTFE), George Mason University, Fairfax, Virginia, June 3, 2015
- **I. Rytikova**. A Methodology for Personalized Competency-based Learning in Undergraduate Courses. Presented at the *15th Annual Conference on Information Technology Education and the 3rd Annual Conference on Research in Information Technology,* Atlanta, Georgia, October 15 -18, 2014
- **I. Rytikova**. Competency-based Modular Approach in AIT database courses. Presented at the workshop "*Mason Life-long Learning*" at George Mason University, Fairfax, Virginia, November 1, 2013
- **I. Rytikova**. Review and Analysis of the Modern Software Solutions for Quality Control Management in Metallurgical Industry. *Cross-Industrial Economic Cooperation*, Russia, Moscow, July 2000

- **I. Rytikova**. Quality Control Optimization: Theory, Strategies, and Implementation. *Association for Industrial and Economic Cooperation*, Russia, Moscow, August 2000
- **I. Rytikova**. Training session: An Integrated Computer System for Operations Management Optimization of a Large Industrial Complex. *Research Institute of the University of Education*, Russia, Moscow, January, 1999
- **I. Rytikova**. Pros and Cons of the Artificial Intellect Components in the Software Solutions in the Metallurgical Industry. *Technological University*, May, 1999
- **I. Rytikova**. Real-time Data Processing in Operations Management Expert Systems. *Power Industries Institute*, Russia, Moscow, November, 1999

Journal Articles
- **I. Rytikova**. Classification of the decision-making methodologies and their applications in metallurgical industry, *Journal of Science and Technology "Electrometallurgy"*, March issue, Russia, 2002
- **I. Rytikova**. Integration of knowledge and its representation in Operations Management Software Training Systems, *Integral – Journal of Science and Practice*, January issue, Russia, 2002

Publications
- **I. Rytikova**, M. Boicu. Learning Is Fun! Wait … STEM Learning? in *Proceedings of the 2015 Innovations in Teaching & Learning (ITL) conference,* "*The Science of Learning: Using Research to Improve Teaching*", George Mason University, Fairfax, Virginia, September 18, 2015 http://journals.gmu.edu/ITLCP
- **I. Rytikova**, M. Boicu. A Methodology for Personalized Competency-based Learning in Undergraduate Courses, in *Proceedings of the 15th Annual Conference on Information Technology Education and the 3rd Annual Conference on Research in Information Technology,* pp. 81-86, Atlanta, Georgia, October 15 -18, 2014
- **I. Rytikova**. Intellectual expert training systems in education, in *Proceedings of the IX International Conference "Mathematics. Computer. Education."* Dubna, Russia, January 28 — February 2, 2002
- S. Fomin, **I. Rytikova**. Mathematical modeling of the decision-making process in dynamic performance management in metallurgical complexes, in *Proceedings of the IX International Conference "Mathematics. Computer. Education."* Dubna, Russia, January 28 — February 2, 2002
- **I. Rytikova**, N. Emeliyanov. Decision-making process based on a fuzzy model in a complex industrial system, in *Proceedings of Institute for Systems Analysis of Russian Academy of Sciences (ISA RAS)*, July, 2002, Russia
- **I. Rytikova**, S. Fomin. Defining a model of an integrated computer system for operations management of a large industrial complex, in *Information Technology in Metallurgy and Economics*, 4th vol., Russia, 1999
- **I. Rytikova**, S. Fomin. Optimizing a decision-making methodology in operations management for large industrial complexes, in *Periodic series of the Research Institute of the University of Education*, 2nd vol., Russia 1999
- **I. Rytikova**, S. Fomin. Decision-making under uncertainty in operations management. In *Proceeding of the Sixth Symposium "Advances in the System of Education in Russia"*, 1999

Organized Research Labs and Workshops
- **I. Rytikova**, I. Vasilyeva, M. Boicu. Workshop: Introducing Research to Students Through Ready-to-Use Bb Modules. *2018 Innovations in Teaching & Learning (ITL) conference*, George Mason University, Fairfax, Virginia, September 14, 2018
- **I. Rytikova**, M. Boicu. Customizing Higher Education: Competency-based Personalized Learning. *Workshop series "Mason Life-long Learning"*, George Mason University, Fairfax, VA, September 30, 2014
- **I. Rytikova**. *"Advancing Engineering Education"* workshop, National University of Science and Technology, Russia, January 2013

- **I. Rytikova**, M. Boicu. *Personalized Learning in Applied Information Technology* Lab, George Mason University, Fairfax, VA, 2013

Interactive Sessions

- C. Holland, K. Pallay, J. E. Rosecrans, **I. Rytikova**. The Freedom to Teach: Using Open Educational Resources in Your Courses. *2016 Innovations in Teaching & Learning (ITL) conference,* "*The Science of Learning: Using Research to Improve Teaching*", George Mason University, Fairfax, Virginia, September 16, 2016
  http://journals.gmu.edu/ITLCP/article/view/1619
- M. Boicu, **I. Rytikova**, L. Poms, J. Nelson, N. Peixoto, L. Sherry, G. Tecuci. Teaching Strategies for Nourishing Creativity and Innovation. *2016 Innovations in Teaching & Learning (ITL) conference,* "*The Science of Learning: Using Research to Improve Teaching*", George Mason University, Fairfax, Virginia, September 16, 2016
  http://journals.gmu.edu/ITLCP/article/view/1559

Round Table Discussions

- S. Olson, T. HA, **I. Rytikova**, M. Boicu, Investigating Space Testing Effectiveness in Undergraduate Database Courses. Presented at the *2016 Lilly International Conference "Evidence-Based Teaching & Learning"*, Bethesda, Virginia, June 4, 2016

Posters

- E. Olimpiew, **I. Rytikova**, M. Boicu. Emotions Impact on Learning. *2018 Innovations in Teaching & Learning (ITL) conference*, George Mason University, Fairfax, Virginia, September 14, 2018
- P. Pelluru, S. Olson, **I. Rytikova**, M. Boicu. Involving Undergraduate Students in Curriculum Development. *2018 Innovations in Teaching & Learning (ITL) conference*, George Mason University, Fairfax, Virginia, September 14, 2018
- J. Nord, A. Samaras, R. Ericson, V. Ikonomidou, **I. Rytikova**, R. Sachs, J. Schwebach, J. Nelson, D. Gerasimova. "Teaching as a creative and learning process". *2016 Innovations in Teaching & Learning (ITL) conference,* "*The Science of Learning: Using Research to Improve Teaching*", George Mason University, Fairfax, Virginia, September 16, 2016
  http://journals.gmu.edu/ITLCP/article/view/1534
- S. Olson, **I. Rytikova**, T. Winston, M. Boicu. "Creating the Research and Innovation Ecosystem". *2016 Innovations in Teaching & Learning (ITL) conference,* "*The Science of Learning: Using Research to Improve Teaching*", George Mason University, Fairfax, Virginia, September 16, 2016
  http://journals.gmu.edu/ITLCP/article/view/1542
- S. Olson, T. Ha, **I. Rytikova**, M. Boicu. Big Ideas from Big Data: Data-Driven Educational Ecosystem. Presented at the *2016 Oracle GMU Big Data Symposium* "*Breakthroughs in Big Data Analytics in the Public Sector*", George Mason University, Fairfax, Virginia, January 7, 2016

Tutorials

- Y. Prokopchuk, **I. Rytikova**. Discrete Mathematics. Basic graph's types. *Technological University Press*, Russia, 1999
- Y. Prokopchuk, **I. Rytikova**. Discrete Mathematics. Parts of graphs. *Technological University Press*, Russia, 1999
- E. Komissar, Y. Prokopchuk, & **I. Rytikova**. Discrete Mathematics. Basic characteristics of graphs. *Technological University Press*, Russia, 1999
- N. Bulhov, Y. Prokopchuk, & **I. Rytikova**. Discrete Mathematics. Obtaining information about graphs presented in the matrix form. *Technological University Press*, Russia, 1999

Book Reviews

- *Database Systems* by P. Rob, 9th edition, Course Technology Cengage Learning, 2009
- *Introduction to Statistics Course and Textbook Review*, McGraw-Hill Higher Education, 2009

- *Modern Database Management* by J. Hoofer, M. Prescott, H. Topi , 9th edition, Pearson Prentice Hall, 2008
- *Database Processing* by D. Kroenke, 11th edition, Pearson Prentice Hall, 2008

Professional Collaboration

- **Micron,** Manassas, VA   2009 - 2011
  Provided training and consulting in the area of production data analysis to optimize the operational performance of a manufacturing system
- **INOVA,** Fairfax, VA   2009 - 2010
  Participated in Mason/INOVA Collaboration Program to support the development of a data analytical system for medical centers
- *Vision* **Networks Inc.,** Fairfax, VA   2009 - 2010
  Provided processing and statistical analysis of medical data
- **Artefact, LLC,** Herndon, VA   2005 - 2009
  Participated in the research and development of the speech therapy software applications

Professional Education

- GMU Social Media Management and Information Visualization Tools   2016
- GMU OSCAR Curriculum Development Scholarship Development Grant Workshop   2016, 2017
- GMU Active Learning Classroom Day Workshop   2015, 2016
- GMU Writing Across the Curriculum Faculty Retreat   2015
- Sloan-C Workshop: Using Online Learning Strategically to Improve Educational Quality   2013
- EMC Educational services: Information Storage and Management Optimization   2010

Community Connections

- Mentoring Oakton High School Multi-year Capstone Project (1 team)   2014