

Abdulaziz Ahmed, Ph.D.
Assistant Professor and Program Lead

Business Department
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ANALYTICAL SKILLS

- Linear Regression
- Logistic Regression
- Multi-nominal Logistic Regression
- Lasso and Ridge Regression
- Support Vector Regression
- Random Forest
- Decision Trees
- Ensemble Learning
- Deep Learning
- Time Series Forecasting (i.e., ARIMA, ARMA)
- Discriminant Analysis
- Principle Component Analysis
- Cluster Analysis
- K-Nearest Neighbors
- Linear Programming
- Mixed Integer Linear Programming
- Simulation-Optimization
- Metaheuristics (i.e., GA, SA)
- Multi-objective Optimization
- Discrete Event Simulation
- Python (Jupyter, Spyder)
- R-Studio
- Scikit-learn, Keras
- Pandas, Numpy
- Matplotlib, Seaborn
- Cplex, PuLp

EDUCATION

Ph.D., Industrial and Systems Engineering **Sept 2012 – May 2016**

State University of New York at Binghamton, Binghamton, NY. (*ABET Accredited*)

Dissertation Title: Optimization of Health Information Exchange Network: Study of Sustainability from a Cost-and-Benefit Perspective.

M.S., Industrial Engineering **Feb 2010 – Aug 2012**

Jordan University of Science and Technology, Irbid, Jordan. (*ABET Accredited*)

Thesis Title: Simulation Based Analysis of the Effect of Product Assignment Policies on the Performance of a Multi-Level/Multi-Product Supply Chain.

B.S., Industrial Engineering **Sept 2004 – June 2009**

Jordan University of Science and Technology, Irbid, Jordan. (*ABET Accredited*)

Senior Design Project: Material Handling Systems Selection Using Analytic Hierarchy Process (AHP).

PROFESSIONAL CERTIFICATIONS

Lean Six Sigma Black Belt Certification **Sept 2015**

Thomas J. Watson School of Engineering and Applied Science, Binghamton University.

Lean Six Sigma Green Belt Certification **May 2013**

Thomas J. Watson School of Engineering and Applied Science, Binghamton University.

JOURNAL PUBLICATIONS (* Indicates corresponding author)

Published Articles

- [1] **Ahmed, A***, Frohn E. “**A Predictive and Prescriptive Analytical Framework for Scheduling Language Medical Interpreters**” *Health Care Management Science (Accepted)*, (**Ranking: Q1**).
- [2] Ali, H., Cole, A., **Ahmed, A.**, Hamasha, S., Panos, G. “**Psychological Impact and Coping Strategies of Frontline Nursing Staff During the Outbreak of Coronavirus Disease 2020 (COVID-19) in Alabama**” *Journal of Multidisciplinary Healthcare*, 2020;13:2057-2068. (**Ranking: Q1**).
- [3] **Ahmed, A***, Ali, H. “**Modeling Patient Preference in an Operating Room Problem**” *Operations Research for Health Care*, 2020, 25:100257. (**Ranking: Q1**).
- [4] **Ahmed, A.**, Naji, A. and Tseng, M.-L. (2020), “**A decision model for selecting a safety data sheet management system using fuzzy TOPSIS**”, *Journal of Modelling in Management*, 2020, 15 (4): 1515-1541. (**Ranking: Q2**).
- [5] **Ahmed, A***, Shen, W., Khasawneh, M.T., 2019. **Sustainability modelling of health information exchanges in dynamic environments.** *International Journal of Industrial and Systems Engineering* 33, 413–434. (**Ranking: Q2**).
- [6] Aqlan, F., **Ahmed, A.**, Cao, W., and Khasawneh, M.T. “**An Ergonomic Study of Body Motions during Muslim Prayer Using Digital Human Modeling**,” *International Journal of the Industrial and Systems Engineering*, 2017, 25(3):279- 296. (**Ranking: Q2**).
- [7] Aqlan, F., **Ahmed, A.**, and Ashour, O., “**Optimal Rush Order Acceptance Decisions Using Simulation and Utility Theory**,” *European Journal of Industrial Engineering*, 2017, 11 (5): 613-630. (**Ranking: Q1**).

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- [8] Al-Hawari, T., **Ahmed, A.**, Khrais, S., and Mumani, A. “**Impact of Assignment, Inventory Policies and Demand Patterns on Supply Chain Performance,**” *International Journal of Simulation Modelling*, 2013, 12(3): 164-177. (*Ranking: Q2*).

CONFERENCE PUBLICATIONS (FULLY REFEREED)

- [9] Tutun, S., **Ahmed, A.**, Yesilkaya, I., Irgil, S., Khasawneh, M.T. “**Detecting Psychological Symptom Patterns Using Regularized Multinomial Logistic Regression**” *Proceeding of the 2019 Industrial and Systems Engineering Research Conference*, Orlando, FL, May 2019.
- [10] **Ahmed, A.**, and Hamasha, M. “**Scheduling Language Interpreters at a Medical Center: An Integer Programming Approach,**” *Proceeding of the 2018 Industrial and Systems Engineering Research Conference*, Orlando, FL, May 2018.
- [11] **Ahmed, A.**, and Lam, S.S. “**Optimizing the Benefits of Hospitals in Health Information Exchange Networks: An Integer Programming Model,**” *Proceeding of the 2017 Industrial and Systems Engineering Research Conference*, Pittsburg, PA, May 2017.
- [12] **Ahmed, A.**, and Ashour, O. “**Using Artificial Neural Network as a Meta-Modeling Technique in Supply Chains,**” *Proceeding of the 2015 Industrial and Systems Engineering Research Conference*, Nashville, TN, May, 2015.
- [13] **Ahmed, A.**, Al-Mashraie, M., and Aqlan, F. “**Evaluating Dispatching Rules in Manufacturing Systems Using Simulation and Data Envelopment Analysis,**” *Proceeding of the 2015 Industrial and Systems Engineering Research Conference*, Nashville, TN, May, 2015.
- [14] **Ahmed, A.**, Srihari, K., and Khasawneh, M.T. “**Power Source Evaluation Using Hybrid Monte Carlo Simulation and Analytic Hierarchy Process,**” *Proceeding of the 2014 Industrial and Systems Engineering Research Conference*, Montreal, Canada, May, 2014.
- [15] **Ahmed, A.**, and Lam, S.S. “**Material Handling Equipment Selection Using Multi-Attribute Utility Theory and Monte Carlo Simulation,**” *Proceeding of the 2014 Industrial and Systems Engineering Research Conference*, Montreal, Canada, May, 2014.
- [16] **Ahmed, A.**, Chou, C., and Shehadeh, K.S. “**Joint Effect of Appointment Scheduling Rules and Resource Selection on Outpatient Clinics Performance,**” *Proceeding of the 2014 Industrial and Systems Engineering Research Conference*, Montreal, Canada, May, 2014.
- [17] Aqlan, F., **Ahmed, A.**, Srihari, K., and Khasawneh, M.T. “**Integrating Artificial Neural Networks and Cluster Analysis to Assess Energy Efficiency of Buildings,**” *Proceeding of the 2014 Industrial and Systems Engineering Research Conference*, Montreal, Canada, May, 2014.
- [18] Al-Hawari, T., **Ahmed, A.**, and Salman, L. “**Enhancing Performance of the Loading Process in a Cement Factory through Simulation,**” *Proceeding of the 2012 Industrial and Systems Engineering Research Conference Proceedings of Industrial and Systems Engineering Research Conference*, Orlando, FL, May, 2012.
- [19] Momani, A.M., and **Ahmed, A.** “**Material Handling Equipment Selection Using Hybrid Monte Carlo Simulation and Analytic Hierarchy Process,**” *World Academy of Science, Engineering and Technology* 59 (2011): 953-958.
- [20] Al-Hawari, T., Al-Natour, M., Ababneh, M., and **Ahmed, A.** “**Improving Productivity and Quality of Service in Internal Medicine Clinics through Simulation,**” *Proceeding of the 2011 Industrial Engineering Research Conference*, Reno, NV, May, 2011.

POSTERS AND PRESENTATION

- [1] **Ahmed, A.**, “**Scheduling Medical Interpreters: A Data-driven Optimization Model**” Presented at *INFORMS Annual Meeting*, Seattle, WA, Oct 20 – 23, 2019.
- [2] Tutun, S., **Ahmed, A.**, Irgil, S., Yesilkaya, I., Yorulmaz, T., “**Behavioral Business Intelligence for Occupational Health & Safety**” Poster Presentation, *INFORMS Annual Meeting*, Seattle, WA, Oct 20 – 23, 2019.
- [3] Al-Hawari, T., **Ahmed, A.**, Khrais, S., and Mumani, A. “**The Effect of Capacity Constraints on Performance of a Multilevel/ Multi-Product Supply Chain,**” Poster presented at *Industrial and Systems Engineering Research Conference*, San Juan, PR, May 18, 2013.

CURRENT EMPLOYMENTS

Assistant Professor, Business Department, University of Minnesota Crookston, MN **Aug 2016 – Present**

- Deliver high-quality undergraduate instruction on campus and online to students in the Manufacturing Management and Quality Management programs.
- Teach 24 credits per year; course topics include, but are not limited to, Operations Management, Logistics and Supply Chain Management, Applied Quality, Lean Six Sigma, and Product Development Management.
- Establish my research program, with a focus on optimization, data analytics.
- Provide leadership and assistance in the development and implementation of program goals and objectives.
- Advise students.

Lead for MM/QM programs, Business Department, University of Minnesota Crookston, MN
Present

Aug 2016 – Present

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- Select and develop Program Advisory Council (PAC) that meets at least one time per year.
 - Participate in faculty development each year as required.
 - Select, train, develop, manage, and lead regular and adjunct faculty according to the guidelines provided by the business department policies.
 - Effectively administer and grow MM/QM programs including curriculum development, student registration/advisement, community relations and campus relations.
 - Collaborate with other Academic Program Leads within the department and across the campus in many activities such as course scheduling and curriculum changes.
 - Prepare MM/QM programs for accreditation (i.e., mainly the Accreditation Council for Collegiate Business Schools and Programs (ACBSP)).
 - Conduct annual assessment for MM/QM programs.
 - Work on articulation agreements with partner community colleges.
 - Participate in recruitment and retention efforts.
 - Help expand the program network with industry to benefit BMM/QM programs, student experience, and student employment opportunities.

EMPLOYMENT HISTORY

Graduate/ Teaching Assistant, Systems Science and Industrial Engineering Department,
State University of New York at Binghamton, Binghamton, NY.

May 2015 – May 2016

- **Professional Development Courses:** Lean Six Sigma Green Belt (LSSGB) & Lean Six Sigma Black Belt (LSSBB)
 - Develop and grade the LSSGB exam.
 - Maintain office hours (in person and online) for more than 90 students.
 - Assist in the development of Healthcare LSSBB program, including tools, examples, case studies, and final exam.
- **Academic Courses:** Foundations of Neural Networks (Ph.D. Level Course)
 - Evaluate student performance, including grading exams, quizzes, assignments, and papers.
 - Maintain weekly office hours to communicate in person with students as needed.

Graduate Project Assistant, ACHIEVE, Johnson City, NY.

Jan 2014 – Aug 2015

- **Project I: Development and Implementation of a System to Comply with the Global Harmonization System (GHS) for Classifying and Labeling Chemicals Used at the Work Site.**
 - Developed databases for 500 chemicals accompanied with their safety data sheets (SDSs).
 - Assisted the decision makers in finding the best SDS management system in the market.
 - Arranged the implementation of the SDS management system.
 - Provided training to the employees at ACHIEVE on how to use the SDS management system.
 - Developed policies for monitoring and controlling the chemical purchasing process.
- **Project II: Person-Centered Planning and Organizational Transformation through Analyzing Personal Outcome Measures (POMs) Interviews.**
 - Worked as a data analyst for the POMs' data.
 - Developed a decision support system using VB.NET to analyze the POMs' data.
 - Developed a standard way for reporting the analysis results.

Graduate Research Assistant, Watson Institute for Systems Excellence (WISE),
State University of New York at Binghamton, NY.

Sept 2012 – Dec 2013

- Worked on the applications of Lean Six Sigma in healthcare.
- Researched on Digital Human Modeling domain.
- Researched about smart grid and power sources in the United States.

Engineering Intern, Shaphaco Pharmaceutical Industries, Amman, Jordan.

Summer 2008

- Improved the performance of the manufacturing line of tablet medicine using statistical process control tools.

COURSES TAUGHT

- BM 3025 – Lean Six Sigma, Fall 16, 17, 18, 19; Spring 17, 18, 19, 20.
- MGMT 3250 – Operations Management – Fall 16, 17, 18, 19; Spring 17, 18, 19, 20; Summer 17, 19.
- BM 3034 – Applied Quality – Summer 17, 18, 19.
- MGMT 3255 – Logistics/Supply Chain Management – Spring 17, 18.
- BM 3804 – Individual Studies Fall 16, 17, 18, 19; Spring 17, 18, 19; Summer 17, 19.
- BM 3900 – Internship – Fall 16, 17, 18, 19; Spring 17, 18, 19; Summer 17, 19.

TEACHING INTERESTS

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- Project Management
 - Machine Learning Using Python
 - Operations Research
 - Marketing Analytics
 - Applied Multivariate Analytics
 - Optimization Algorithms
 - Business Statistics
 - Business Simulation

ENGINEERING PROGRAMS AND COMPUTER SKILLS

- **Programming Languages:** VB.Net, Python (Jupyter, Spyder).
- **Machine Learning Packages:** Pandas, Scikit-learn, Matplotlib, Numpy.
- **Simulation & Optimization:** CPLEX, LINGO, LINDO, GAMS, AIMMS, Python, Arena, Simio.
- **Statistical Analysis and Design of Experiments:** R, Minitab, SAS
- **Digital Human Modeling:** Jack.
- **Engineering Design:** AutoCAD, SolidWork, Mechanical Desktop, SmartDraw.
- **General Computer Knowledge:** MS Office/Visio/MS Project.

WORKSHOPS AND COURSES ATTENDED

- Best Practices in Online Course Development Workshop, University of Minnesota Twin Cities, Summer 2017.
- Critical Thinking for Engineers, Binghamton University, Apr 2014.
- Microsoft Approved Course 2273 Managing and Maintaining a Microsoft Windows Server 2003 Environment: Civil Society Development Center (C.S.D.C), J.U.S.T, Apr 2009.
- ISO 9001 Training: Jordanian Engineers Association in Irbid, 24 hrs, Apr 2008.
- Project Management Using Primavera: Jordanian Engineers Association in Irbid, 24 hrs, Feb 2008.

INSTITUTIONAL AND PROFESSIONAL SERVICE/ACTIVITIES

Departmental

- Chair, Healthcare Management Search Committee, Fall 2020 – Present.
- **Chair**, Business Department Curriculum Committee, Fall 2020 – Present.
- **Chair**, Management Tenure Track Position Search Committee, Spring 2020.
- **Chair**, Online Quality Assurance Committee, Fall 2018 – Spring 2020.
- **Member**, Search Committee for an Assistant Professor of International Business Management position, Fall 2016 – Spring 2017.
- **Member**, Business Department Curriculum Committee, Fall 2016 – Present.
- **Member**, Quality Assurance Committee, Fall 2016 - Spring 2018.

Campus Level

- **Chair**, Learning Assessment Committee, Fall 2020 – Present.
- **Member**, Learning Assessment Committee, Fall 2019 – Present.
- **Member**, Academic Futuring Committee, Jan 2019 – Present.
- **Member**, UMC Research Day Organizing Committee, Oct 2018 – Present.
- **Member**, Sustainability Committee, Oct 2018 – Present.
- **Member**, Economic Development Administration (EDA) search committee, May 2018 – Sept 2018.
- **Member**, Salary Equity Workgroup, Dec 2017 – May 2018.
- **Member**, Faculty Engagement Committee, Fall 2016 – Spring 2017.

Journal and Conference Reviewer

- Journal of Medical Internet Research, Sept 2019 – Present.
- Transactions of the Society for Modeling and Simulation International, Sept 2019 – Present.
- Wiley, International Journal of Older People Nursing, Jan 2019 – present.
- Elsevier, Applied Soft Computing, Jan 2019 – present.
- Elsevier, Computers & Industrial Engineering, Jan 2016 – present.
- Journal of Systems Science and Systems Engineering, Feb 2017 – present.
- Taylor and Francis, Journal of Industrial and Production Engineering, Sept 2016 – present.
- 1st African International Conference on Industrial Engineering and Operations Management (IEOM), Johannesburg, South Africa, October 29 – November 1, 2018.
- 3rd North American IEOM Conference, Washington, DC, September 27-29, 2018.

Conference Track Chair/Program Committee

- Business Management Track, 3rd North American IEOM Conference, Washington, DC, September 27-29, 2018.

- Member of the Scientific Advisory Board for the Global Joint Conference on Industrial Engineering and Its Application Areas (GJCIE), Gazimagusa, Cyprus, 2-3 September, 2019.

Professional Activities

- Secretary of Alpha Pi Mu and member of the e-board, Binghamton University Chapter, (Feb 2016 – May 2016).
- SSIE Department Student Advisory Board Member (2015 – present).
- Guest Lectures – Human Factors Engineering and Design (Fall 2015); Modeling and Simulation (Fall 2013).
- SSIE Department Ambassador (Sept 2014 – May2016).

AWARDS AND HONOR

- Graduate Student Award for Excellence in Research, Binghamton University, 2015.
- Traveling Grant, Graduate School, Binghamton University, Apr 2015.
- Alpha Pi Mu – Industrial Engineering Honor Society, Binghamton University, NY, Since 2014.

ASSOCIATIONS

- INFORMS – Institute for Operations Research and the Management Sciences.
- IISE – Institute of Industrial and Systems Engineering.
- IEOM – Industrial and Operations Management Society.
- ACBSP - Accreditation Council for Business Schools and Programs.