



Mentoring Undergraduate Research in Education and Business: Transformation in Global and Local Communities

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Undergraduate research in education: Three models

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1. *Analysis of Family and Student research* – course-based project completed in TSL 3080
2. *Interaction with dogs* – service-based research project in kindergartens completed in an Honors course
3. *Autoethnography research on transformation* – completed by education major students during Study Abroad in Hungary

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Analysis of family and student research project

1. Description of the research project
2. Mentoring 40 students in the course
 - ▶ Logistics (e.g., data collection)
 - ▶ Informational literacy
 - ▶ Distribution of findings: writing a research paper, presenting at Research Day
3. Program-wide assessment of the research project—focusing on critical thinking, informational literacy and writing.

Interaction with dogs - service based research project in kindergartens

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1. Course-embedded action research in humane education with Honors students
2. Description: 7 weeks of service in kindergarten -teaching about safety around dogs, and conducting research
3. Mentoring research teams
 - ▶ Designing research
 - ▶ Preparation for teaching and research in kindergarten
 - ▶ Weekly observations and dialogue reflection journals
 - ▶ Guidance in development of research paper, and presentations
4. Outcomes:
 - ▶ Presentations at state and national conferences
 - ▶ Joint publication
 - ▶ Publication on benefits (CUR Quarterly)

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Autoethnography research on transformation: Study Abroad

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1. Description of Study Abroad program and research
2. Mentoring individual students:
 - Designing pre-trip research tasks and guiding students
 - Scaffolding during and post-trip reflections and analysis
 - Coaching students in the development of a joint publication
3. Outcomes:
 - Joint publication
 - Positive impact of transformation about effective pedagogy: evidence in these first year teachers' current classrooms

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Concluding thoughts on mentoring UG in education

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- ▶ Not a “one size fits all” approach but diverse models
- ▶ Giving consideration to every segment of the education program: Honors, Study Abroad and course embedded research
- ▶ Participating in the university wide initiative: QEP/FGCU scholar: course-based research projects; faculty awards for innovative assignment design
- ▶ Locating grants- UG student awards for research, and community grants
- ▶ Ensuring the benefits of UG for BOTH students and faculty members: joint publications

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UG Research Applications in Business

- **Purpose:** Develop necessary skills in students to become scholars.

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Methodology used: Problem Based Learning (PBL): a) construct an extensive and flexible knowledge base, (b) become effective collaborators, (c) develop effective problem-solving skills, (d) become intrinsically motivated to learn, and (e) develop SDL (self directed learning) skills.

- **Classes:** Quality Management, Business Analytics, Operations Management.

- **Assessment principles/rubric:**

- ✓ **Blooms Taxonomy :** Understand the concept; Apply method and tools related to the concept; Identify real world business problems; Adept knowledge of methods and concepts to solve problems; Experience the problems in real-world settings.

- ✓ **QEP (FGCUScholars) Framework:** Critical Thinking (inference, interpretation, evaluation, self- regulation, explanation and analysis) , Writing (context, purpose, genre, syntax), Information Literacy (identification and access of information/evidence, effective use of information).

- **Assignments:** Comprehensive multi-stage term projects.



Undergraduate Research in Business with Local Community Collaboration-1

Quality Management Course

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- ▶ Contact with the Quality Assurance(QA) Manager at Arthrex Logistics Center. Arthrex is a surgical instrument manufacturer. Plant visit.
- ▶ Communicate with student team for possible research problems regarding the inspection and receiving of vendor products.
- ▶ QA manager visits the class and gives a presentation of logistics and quality processes. QA Manager gives feedback to student team project proposals.
- ▶ Student team visits the plant twice to observe the process in action and collects information and data for analysis
- ▶ Student team completes the project and presents in class. QA Manager attends the class and gives final views on the analysis results
- ▶ Student team makes an interactive presentation at the FGCU Research Day, April 2016

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Undergraduate Research in Business with Local Community Collaboration-2

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Quality Management Term Project Milestones

- ✓ **Milestone 1: Define the quality problem. Select a business that you can collect data or receive information regarding the quality problem. Introduce the business.**
- ✓ **Milestone 2: Collect data and confirm with Dr. Yazici whether the data or information is appropriate to continue. Review your quality problem statement. Apply quality tools to the problem.**
- ✓ **Milestone 3: Problem Formulation and Solution. Work on data analysis. Check your solution with Dr. Yazici. Team Presentation in class.**
- **Milestone 4: Project Report and files: Results. What would you propose to the Company to do? What could be added in the future? What would you do differently if you had to redo the project? Did this project help you for a better understanding of the TRA 3163/6166 course material? Final submission. Final Presentation of the project by team members.**
- ✓ **Milestone 5: Research Day presentation.**



UG Research Applications in Business-3

Business Analytics Course Term Project Milestones

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- ✓ **Milestone 1:** Identify a research problem that will lead you to collect and analyze data. Describe the issue, its significance, benefits to the business or community, what you would like to achieve at the end of your study (possible findings).
- ✓ Class presentation by local businesses, such as Herc Rental
- ✓ **Milestone 2:** Data Collection, Descriptive Data Analysis, Sample size check, Research Hypotheses
- ✓ **Milestone 3:** Hypotheses testing, Comparison of two means-ANOVA or Regression Analysis, Forecasting models, Spreadsheet modeling and risk simulation as applies.
- ✓ **Milestone 4:** Draft report and data analysis, results, solution.

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- ✓ **Milestone 5:** Project report and team presentation, Report consists of problem description, summary of results, Interpretation of the findings, benefits, shortcomings.
- ✓ **Milestone 6:** Participation to FURC