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| **1. Course title/number, number of credit hours** |
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|  IDS 3913C – Introduction to Undergraduate Research Design  |

 |  1 credit hour |
| **2. Course prerequisites, corequisites, and where the course fits in the program of study** |
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| Permission of instructor |
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| **3. Course logistics** |
| *Term*: Spring 2017This is a classroom lecture course*Time*: Monday 12:00 - 2:50 pm (Lecture)

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| Presentations, class participation and project are required. Deadlines for submissions and dates for presentations will be provided. No extensions for project reports/presentations will be provided, except in documented emergencies.  |

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| **4. Instructor contact information** |
| *Instructor’s name**Office address**Office Hours* *Contact telephone number**Email address* | Dr. Daniel MeeroffEngineering West (EG-36) Bldg., Room 206T/R: 11:00 -12:00 PM561-297-3099dmeeroff@fau.edu  |
| **5. TA contact information** |
| *TA’s name**Office address**Office Hours* *Contact telephone number**Email address* | N/AN/AN/AN/AN/A |
| **6. Course description** |
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| Introduction to research exposure and skill building focused on the scientific process and nature of discovery. Students define research topics, formulate research questions, develop research proposals, prepare experimental plans, and develop research communication skills. *Portions of this course were developed out of an FAU Curriculum Grant Program, designed to support integrating research and inquiry ideas and activities into course assignments, and engaging students in the process of discovery as part of FAU’s Quality Enhancement Plan (QEP) program: Distinction through Discovery. As part of this course, some of your work samples may be collected to evaluate the effectiveness of the Distinction through Discovery program. For more information about the Office of Undergraduate Research and Inquiry, please visit* [*http://www.fau.edu/ouri*](http://www.fau.edu/ouri)*Portions of this course were also developed as part of an NSF grant program, called LEARN™.* |

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| **7. Course objectives/student learning outcomes/program outcomes** |
| *Course objectives* |

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| 1. Provide students with skill building on the scientific process and nature of discovery
2. Develop student's ability to define research topics and formulate research questions
3. Provide students the tools for developing research proposals and preparing experimental plans, including the ability to plot data, calculate correlations, and find published scientific papers using a keyword search
4. Develop student’s communication and presentation skills
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| *Student learning outcomes**& relationship to ABET a-k objectives* |

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| 1. Ability to follow scientific process and discovery (a, b, e, h, i, j, k)
2. Ability to define research topics, review the literature, and formulate research questions (a, e, f, h, k)
3. Ability to prepare research proposals and prepare experimental plans within an ethical conduct of research (a, b, c, f, j, k)
4. Ability to communicate and make presentations (d, g, k)
5. Ability to conduct research in a mentored setting (a,b,d,e,f,g,h,i,j,k)
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| **8. Course evaluation method** |
| Final project report/presentation | 50% | *Note*: The minimum grade required to pass the course is “C.”Class participation and discussions are important.Presentations are required. |
| Assignments/assessments | 30% |
| Final evaluation | 15% |
| Class participation | 5% |
| **9. Course grading scale** |
| 92-100 | A | * The minimum score to pass is “C”
* Overall performance as related to course objectives and outcomes is evaluated and considered during grading.
* Achievement below 60% on an assignment is considered failure to meet the module objectives.
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| 90-91 | A- |
| 88-89 | B+ |
| 82-87 | B |
| 80-81 | B- |
| 78-79 | C+ |
| 72-77 | C |
| 70-71 | C- |
| 68-69 | D+ |
| 62-67 | D |
| 60-61 | D- |
| <59 | F |
| **10. Policy on makeup tests, late work, and incompletes** |
| *Makeups* are given only if there is solid evidence of a medical or otherwise serious emergency that prevented the student of participating in the exam. *Late work* is not unacceptable.*Incomplete grades* are against the purpose of this class. Unless there is solid evidence of medical or otherwise serious emergency situation, incomplete grades will not be given. |
| **11. Special course requirements** |
| None |
| **12. Classroom etiquette policy** |
| University policy requires that in order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular phones and laptops, are to be disabled in class sessions. |
| **13. Disability policy statement** |
| In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS)—in Boca Raton, SU 133 (561-297-3880); in Davie, LA 203 (954-236-1222); or in Jupiter, SR 110 (561-799-8585) —and follow all SAS procedures. |
| **14. Honor code policy** |
| Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and place high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. See University Regulation 4.001 at [www.fau.edu/regulations/chapter4/4.001\_Code\_of\_Academic\_Integrity.pdf](http://www.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf)  |
| **15. Required texts/reading** |
| * Blackboard registration
* Handouts/lecture notes provided by instructor
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| **16. Supplementary/recommended readings** |
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| * Research Methodology – A Step-by-Step Guide for Beginners” by Ranjit Kumar, SAGE, 2014, 4th Edition.
* Research Methods for Engineers, Author: David V. Thiel

Hardcover: 302 pages. Paper back available at a cheaper price.Publisher: Cambridge University Press; 1 edition (October 27, 2014)Language: EnglishISBN-10: 1107034884ISBN-13: 978-1107034884 **Philip B. Bedient** (Author) **›** [Visit Amazon's Philip B. Bedient Page](http://www.amazon.com/Philip-B.-Bedient/e/B001IYVNQW/ref%3Dntt_athr_dp_pel_pop_1)* Are you an author? [Learn about Author Central](http://authorcentral.amazon.com/gp/landing/ref%3Dntt_atc_dp_pel_1)
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| **17. Course topical outline, including dates for exams/quizzes, papers, completion of reading** |
| **Date** | **Topic** | **Assignment** |
| Week 1January 9, 2017 | Syllabus, Expectations, Introduction to Undergraduate Research, Scientific Method, Research Process(How to Write a Research Proposal Workshop for Competitive Funding) | HW: Discussion Board: Introduce Yourself to the Class |
| Week 2 January 16, 2017 | Holiday (Martin Luther King Day) |  |
| Week 3January 23, 2017 | Literature Search and Review(Reference Librarian) | HW: Syllabus Quiz |
| Week 4January 30, 2017 | Formulate Research Questions, RationaleDefine the Problem/Objectives, Scope of Study | HW: Find a relevant peer reviewed article in your field of research |
| Week 5 February 6, 2017 | Constructing a Hypothesis, Predict OutcomesIn class peer review/critique | Hypothesis, Peer Review/Critique |
| Week 6 February 13, 2017 | Identifying Research Variables, Developing a Research Plan of Action, Employ Research Methodologies | Literature Review Draft (at least 10 peer-reviewed articles) |
| Week 7 February 20, 2017 | Writing an Effective Abstract | Critique Instructor Provided Samples in ClassHW: Write an abstract for critique  |
| Week 8 February 27, 2017 | Communication, Writing Research Papers, Design of Research Presentations (Create a Poster and Oral Presentation Workshop) | HW: Draft Poster |
| Week 9  | Spring Break (March 6 – March 12, 2017) |  |
| Week 10March 13, 2017 | Critical Thinking, Data Collection, Evaluating Data, Interpret Results, Justify Conclusions/Burden of Proof Statistical Analysis: Basic Methods | Research Graphics Update Literature Review |
| Week 11March 20, 2017 | Optimization Methods, Survey Methods, Contingency PlansBudgets and TimelinesPractice Presentations | HW: Research MethodsPractice Presentations |
| Week 12 March 27, 2017 | Ethical Conduct, Research Compliance, Research Integrity(Research Ethics Workshop)More Practice Presentations | HW: Draft Outline of Proposal with Research PlanPractice Presentations |
| Week 13 April 3, 2017 | More Practice Presentations | Practice Presentations |
| Week 14April 10, 2017 | **Final Project Presentations (10 minutes max)** | Draft Presentation |
| Week 15 April 17, 2017 | **Final Project Presentations** |  |
| Week 16April 24, 2017 | **Final Project Presentations** | Draft Proposal |
| April 28, 201710:30 – 13:00 | **Final Evaluations** | Reflection Paper |

NIH aims and subaims (research objectives)

Intro, methods, expected findings, broader impacts/intellectual merit