

## University of Central Florida College of Medicine

### SELECTIVE / ELECTIVE / ACTING-INTERNSHIP PROPOSAL FORM

**\*Please complete the entire form. All fields are required\***

**Proposal Date:**

**Course Title:** Write and Publish a Research Article

**Department/Specialty:** Medical implants, tissue engineering, bioengineering and biomaterials

**Brief Description (25 words maximum):** This elective aims to provide students with the opportunity to learn to write a research manuscript to a quality suitable for publication in peer-reviewed journals.

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**Primary Preceptor Supervising Students:**

**Office Location:**

**Email:**

**Office Phone:**

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**Please indicate course type (select one):**  M3 Clerkship Selective  M3 Clerkship Elective (4 wks)

M4 Clerkship Elective (4 wks)  M4 Clerkship Elective (2 wks)  M4 Clerkship Elective (2 or 4 wks)

M4 Clerkship Acting-Internship (4 wks)

Other [Click here to explain why your course does not align with the previous course choices.](#)

**Location:**

- **Location to Report on the first day:**
- **Reporting Time:**
- **Contact Person** (for information/ scheduling):
- **Contact Phone and e-mail:**

**Which blocks will this rotation be offered during the academic year?** The typical academic year is June 1 – April 30. Please select which months you can offer this course to students. **UCF COM will verify this information yearly.**  June  July  August  September  October  November  December

January  February  March  April  May

**What is the number of students per rotation block?** 8

**Prerequisites** (check all that apply):

Completion of M2  Completion of M3  Consent of Instructor

Completion of Core Clerkship in [Click here to enter text.](#)  Other: None required

**Length of program (weeks):** 4 weeks

**Estimated total contact hours/week:** 40

**Estimated % of time - Inpatient:** 0

**Estimated % of time - Outpatient:** 0

**Estimated % of time – Indirect contact time (independent study or online course work):** 100

**Estimated patient volume: What is the estimated number of patients/week for whom the student will have some responsibility, e.g., intakes/week 0 follow-ups/week 0**

**On-call schedule:** n/a

**Weekend duties:** n/a

**For non-patient care rotations, describe the typical learning activities and responsibilities of the student:** n/a

**Describe the expected level of supervision of students by faculty and residents:** Full supervision

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**Goals of the Rotation: Specify the anticipated clinical conditions the student will encounter and the clinical knowledge, and examination and procedural skills the student will be expected to learn:** This rotation is designed to provide medical students with insights into the specialty of writing a research article.

The goal of this elective is to provide students with the knowledge and skills required to design and write a research manuscript in a format, and to a quality suitable for publication within a peer-reviewed journal. This goal will be achieved through students working in collaboration with a member/s of the Biionix (Bionic Implants, Interfaces and Materials) Cluster. The Cluster consists of 15 faculty members and is interdisciplinary in nature; comprised of professors from UCF's Department of Mechanical and Aerospace Engineering, Materials Science and Engineering, within the College of Medicine (also Nemours Children's Hospital, Advent Health and Orlando Health) and Limbitless Solutions. The overall aim of this elective is to offer students hands-on experience in writing and completing a research article on a topic of their choice as well as learning about the mechanisms involved in the peer-review process and in article publication. At the beginning of the elective, students will first receive a taught class on "the principles of how to write a research paper", and will then be assigned to a faculty mentor/s who will guide them on a day-to-day basis during the construction and writing of the manuscript and over the 4-week period.

In the first instance, students will have the opportunity to choose from a list of manuscript topics formed by the Cluster and provided by Dr. Coathup, or to collaboratively develop a new concept to work on. A wide variety of research topics will be available, ranging from the use, synthesis and development of novel biomaterials, biosensors, robotics, movement, computational modeling, various cutting-edge techniques involved in tissue regeneration and repair as well as clinically based topics; all focused towards making healthcare smarter and safer. Manuscripts will mainly consist of literature or systematic reviews, but may also include those following study data collection - if the data already exists or is expedient to obtain. If preferred, it will also be possible for more than one student to work on one manuscript.

By the end of the elective, students will have developed a strong knowledge-base on the content, style and form required to write a research manuscript, how to critically analyze and appraise research papers, how to gather, interpret and present data in addition to developing in-depth scientific knowledge of their chosen subject area. By the end, the goal will be for the students to have formed a strong draft of a manuscript and post-elective, students will be expected to work with the mentor to ensure its publication in a journal or book (or other appropriate published form). Where appropriate, students will also be encouraged to submit their findings to local, national and international conferences. Subsequent research presentations will contribute to improving communication and presentation skills as well as in providing students with the opportunity to engage and network with the scientific and/or clinical community.

**Learning Objectives: Please group these under the following headings:**

***Patient care: Click box to agree to the statement below***

The medical student is expected to provide patient care that is compassionate, appropriate, and effective for the promotion of health, prevention of illness, and treatment of disease.

Other: This elective does not include patient care

***Medical Knowledge:*** The medical student is expected to demonstrate medical knowledge relevant to writing a research manuscript, as well as the application of this knowledge to patient care: The student will obtain and develop medical knowledge in the following areas:

The specific medical/scientific knowledge gained will be dependent on the subject area chosen, however, all students will gain knowledge associated with the content, style and form required to write a medical research manuscript, how to critically analyze and appraise medical research papers and how to gather, interpret and present medical data. Specifically, the students will gain knowledge on the principles of how to formulate hypotheses, to describe the role of study aims, objectives and methodological designs; to understand the principles and requirements of writing a good scientific manuscript. This will also include gaining knowledge and understanding of how to organize and write an introduction, methods, results and discussion and what information and content should be included in each section. In relevant manuscripts, students will also learn to perform statistical analyses. The goal of this elective is to equip students with research writing expertise and skills that will support the success of not only this manuscript, but any future medical research they may choose to carry out.

***Practice Based Improvement:*** The medical student is expected to be able to demonstrate the ability to investigate and evaluate their care of patients and to continuously improve care based on constant self-evaluation and life-long learning.

In this elective, students will be expected to demonstrate their ability to concisely formulate aims, hypotheses and objectives as well as in constructing an appropriate methodology to answer the study questions proposed. They will also be expected to design, organize and write an introduction that recognizes the motivation of the study and accurately, comprehensively and coherently reflects the current literature. Students will be expected to formulate tables, graphs and/or other figures that adequately describe the results obtained and perform statistical analyses where relevant. Finally, students will be expected to demonstrate skills in interpreting data, understanding the implications of their findings, comparing/critiquing results with similar published articles, and in critiquing, recognizing and describing the limitations of their own study. Through this, students will display in-depth knowledge of their chosen field, an ability to critically appraise research and ultimately, will share their learned knowledge and skills by publishing their manuscript within the research community.

***Interprofessional and Communication Skills:*** The medical student is expected to demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals.

The student is expected to demonstrate solid interpersonal and communication skills through the day-to-day exchange of thoughts, suggestions and information with faculty, post-docs, grad students, undergrads, and other medical students who may be involved in driving study success. The student is also expected to foster a questioning and inquiring attitude combined with integrity, determination and enthusiasm in order to solve the research challenges that can often arise. This will ultimately equip students for life-long learning.

***Professionalism:*** The medical student is expected to demonstrate behaviors that reflect a commitment to continuous professional development, ethical practice, understanding and sensitivity to diversity, and a responsible attitude toward their patient, their profession, and society.

Students are expected to show respect for all individuals they work with and demonstrate integrity in the work they carry out. When appropriate, students are expected to adhere to principles of confidentiality. Students will be expected to drive the study/manuscript forward however, faculty will be frequently providing feedback and suggestions on how to proceed in the most efficacious way. As such, students will be expected to engage with this learning opportunity by keeping an inquiring mind and in continually working towards improving their performance when/if appropriate.

**Systems Based Practice:** The medical student is expected to demonstrate an awareness of and responsiveness to the larger context of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.

Students will be able to apply the knowledge and skills learned to future research opportunities and studies. The goal of this elective is to provide a scientific writing foundation that equips the students for future research studies and opportunities, when for example, research questions arise during clinical practice.

**Learning Activities: Specify the level of the student's clinical responsibilities, e.g., admissions, daily rounds, weekly conferences, case presentations, literature review, other projects:** The students will be responsible for the day-to-day gathering and analyzing of data, searching databases, collating information, producing tables, figures and graphs, performing statistical analyses and in constructing and writing the manuscript, under the guidance of the faculty mentor.

**Required textbooks and articles:**

[https://owl.purdue.edu/owl/general\\_writing/common\\_writing\\_assignments/research\\_papers/index.html](https://owl.purdue.edu/owl/general_writing/common_writing_assignments/research_papers/index.html)  
[https://faculty.georgetown.edu/kingch/How\\_to\\_Write\\_a\\_Research\\_Paper.htm](https://faculty.georgetown.edu/kingch/How_to_Write_a_Research_Paper.htm). [Publishing and Presenting Clinical Research](#), 3rd edition, 2012 by Warren S. Browner. Also, the Health Sciences Library's guides: [Conducting a Literature Review as a FIRE Project](#), [Systematic Reviews](#), [Getting Published Library Guide](#), [EndNote Library Guide](#) and [JAMA Citation Library Guide](#). Students will also be strongly encouraged to liase with Terri Gotschall, the library's Scholarly Communications Librarian at COM who is available to assist COM students and faculty with their academic publishing needs.

**How will the student's performance be assessed? (All M4 Electives and Acting Internships are P/F Grading):**

**How/when will formative feedback be given?: Click the box to agree to the statement below.**

- The medical student will be evaluated by his/her engagement in the entire learning opportunity including presentations, preparedness for the clinic, and participation in educational conferences. There will be a formal feedback session at mid-term and at the end of the rotation. Feedback for continuous improvement will be provided throughout the rotation.
- Other: The medical student will be evaluated by his/her engagement during the entire learning opportunity as well as on the quality of the written manuscript.

**Summative evaluation: Click the box to agree to the statement below.**

- A final written evaluation will be provided at the end of the rotation. All evaluations will be completed electronically via an online evaluation system.
- Other: A final written evaluation will be provided at the end of the elective and students will be graded as P/F.