

**MAYmester 2019**  
**BioMedical Exploration Experience (BEE)**  
**BMSC 295**

## 1. Course Information

Title: BLaST BioMedical Exploration Experience  
 Number: BMSC 295  
 Credit: 2  
 Prerequisites: Bio 115 or Chem 103 or Permission of instructor  
 Location: UAF, Murie 130  
 Meeting Time: Monday-Friday, 8:00 am- 5:00 pm, May 6 – 17, 2019  
 Fee: None

## 2. Course Instructors

|   |   |  |
|---|---|--|
| <b>Co-Instructor: Natalia Podlutsкая</b><br><b>E-mail:</b><br>npodlutsкая@alaska.edu<br><b>Phone:</b> 474-5799<br><b>Office:</b> AHRB 185<br><b>Hours:</b> By appointment | <b>Co-Instructor: Theresa Vertigan</b><br><b>E-mail:</b><br>tvertigan@alaska.edu<br><b>Phone:</b> 474-5799<br><b>Office:</b> AHRB 185<br><b>Hours:</b> By appointment | <b>Co-Instructor: Dr. Arleigh Reynolds</b><br><b>E-mail:</b><br>ajreynolds@alaska.edu<br><b>Phone:</b> 474-1928<br><b>Office:</b> AHRB 182<br><b>Hours:</b> By appointment |
|---|---|--|

## 1. Course Reading Materials:

No textbook is required for this course. Instructors will provide all the reading material for this class.

## 2. Course Description:

### **BMSC 295 Biomedical Exploration Experience** **2 Credits Offered MAYmester**

Course aims to introduce students to biomedical careers and gain experience working in research labs on the campus.

Time is split between research experiences in labs and site visits observing medical facilities. Course integrates presentations, lectures and demonstrations from university researchers and concludes with student presentations on their experiences.

## 5. Course Goals:

- a) Provide the opportunity for students to learn about, experience, and discuss research and research methods.
- b) Provide experience in biomedical research and medical careers
- c) Stimulate critical thinking and enhance problem solving skills

## 6. Student Learning Outcomes:

- Gain practical experience utilizing research techniques and skills
- Recognize themselves as researchers or health care professionals through reflective writing practices
- Evaluate and document research processes
- Communicate learned principles of the research techniques, results, experiences, and processes to their peers.

## 7. Instructional Methods:

This course will be taught through a combination of morning lectures (*1.5hrs*) and mentored lab experiences (*2.5hrs in lab*) on the UAF Main campus. The afternoons will consist of applied lab activities (hands-on activities, participatory demonstrations) and career exploration with Fairbanks Memorial Hospital (subject to change) and Chief Andrew Isaac Health Center staff and professionals (*4hrs Practicum*).

## 8. Course Calendar:

| Date                                    | Morning Agenda<br>UAF (8:00am – 12:00pm)  | Afternoon Agenda<br>FMH/CAIHC (1:00pm – 5:00pm)  | Assignments:  |
|---|---|--|---|
| <b>Week 1</b>                           |   |  |   |
| <b>Day 1</b><br>05/06/2019<br>Monday    | <ul style="list-style-type: none"> <li>Course Orientation Introduction Lecture (1hr)</li> <li>Lab assignments and Lab Work</li> </ul> | <ul style="list-style-type: none"> <li>CAIHC Orientation</li> <li>CAIHC ID Cards</li> <li>Tour of the CAIHC</li> </ul>   | <ul style="list-style-type: none"> <li>Write a reflection of the Lab and Medical Experience</li> </ul>                              |
| <b>Day 2</b><br>05/07/2019<br>Tuesday   | <ul style="list-style-type: none"> <li>Lecture “Current research projects” (1hr)</li> <li>Lab Work</li> </ul>                         | <ul style="list-style-type: none"> <li>Hospital Emergency Room-simulation.</li> </ul>  | <ul style="list-style-type: none"> <li>Write a reflection of the Lab and Medical Experience</li> </ul>                              |
| <b>Day 3</b><br>05/08/2019<br>Wednesday | <ul style="list-style-type: none"> <li>Lecture “Current research projects”</li> <li>Lab Work</li> </ul>                               | <ul style="list-style-type: none"> <li>Intensive Care Unit &amp; Simulations</li> <li>Nursery-lecture and simulation</li> <li>Pharmacy-lecture and solution mixing.</li> <li>Intravenous Injection simulation</li> </ul> | <ul style="list-style-type: none"> <li>Write a reflection of the Lab and Medical Experience</li> <li>Prep poster outline</li> </ul> |
| <b>Day 4</b><br>05/09/2019<br>Thursday  | <ul style="list-style-type: none"> <li>Lecture “Current research projects”</li> <li>Lab Work</li> </ul>                               | <ul style="list-style-type: none"> <li>Catheterization Lab-presentation and simulation</li> </ul>  | <ul style="list-style-type: none"> <li>Write a reflection of the Lab and Medical Experience</li> </ul>                              |

|   |  |  |  |
|---|--|--|--|
| <b>Day 5</b><br>05/10/2019<br>Friday    | <ul style="list-style-type: none"> <li>Lecture “Current research Projects”</li> <li>Lab Work</li> </ul>  | <ul style="list-style-type: none"> <li>CPR/ First Aid</li> </ul>   | <ul style="list-style-type: none"> <li>Write a reflection of the Lab and Medical Experience</li> </ul>   |
| <b>Week 2</b>                           |  |  |  |
| <b>Day 6</b><br>05/13/2019<br>Monday    | <ul style="list-style-type: none"> <li>Lecture “Current research Projects”</li> <li>Lab Work</li> </ul>  | <ul style="list-style-type: none"> <li>CPR/ First Aid</li> </ul>   | <ul style="list-style-type: none"> <li>Write a reflection of the Lab and Medical Experience</li> </ul>   |
| <b>Day7</b><br>05/14/2019<br>Tuesday    | <ul style="list-style-type: none"> <li>Develop a scientific project with your lab instructor</li> <li>Lecture “poster creation/ scientific communication”</li> </ul> | <ul style="list-style-type: none"> <li>FMH Pharmacy tour,</li> <li>Mixing solutions exercise</li> <li>History of Pharmacy</li> </ul>     | <ul style="list-style-type: none"> <li>Write a reflection of the Lab and Medical Experience</li> <li>Send PDF of your Poster to instructors</li> </ul> |
| <b>Day 8</b><br>05/15/2019<br>Wednesday | <ul style="list-style-type: none"> <li>Develop and print a scientific poster</li> <li><b>Attend ORCA conference session lectures (3h)</b></li> </ul>                 | <ul style="list-style-type: none"> <li>FMH wound Care Unit</li> <li>FMH Assistant Living Home</li> <li>FMH Prenatal Care Unit</li> </ul> | <ul style="list-style-type: none"> <li>Write a reflection of the Lab and Medical Experience</li> </ul>   |
| <b>Day 9</b><br>05/16/2019<br>Thursday  | <b>ORCA Oral Presentation</b><br><b>Attend ORCA conference session lectures (3h)</b>   | <ul style="list-style-type: none"> <li><b>ORCA Poster presentations</b></li> </ul>   | <ul style="list-style-type: none"> <li>Practice delivery of poster for ORCA</li> </ul>   |
| <b>Day 10</b><br>05/17/19<br>Friday     | <ul style="list-style-type: none"> <li><b>Attending ORCA</b></li> <li><b>Attend ORCA conference session lectures (3h)</b></li> </ul>                                 | <ul style="list-style-type: none"> <li><b>Attending ORCA</b></li> <li>Closing ceremony</li> </ul>  | <ul style="list-style-type: none"> <li>Deliver Poster Presentation</li> <li>Final poster due</li> </ul>  |

## 9. Course Policies

**Participation:** Participation during class lectures and laboratory is important. Please feel free to ask questions as they occur to you, and to offer your opinions during discussions.

**Attendance:** You are expected to attend all classes. If you miss a class, you are responsible for obtaining the information covered from another student. It is strongly recommended that

you exchange contact information with another student in this course in the event that you must miss a class. Information covered in class will not be reiterated during office hours. Please do your best to arrive for class on time.

**Assignments:** Assignments are an extension of learning and are designed to reinforce the concepts. It is important to complete assignment in a timely manner to increase its relevancy. Late work will not be accepted.

***Technology in the Classroom:*** Please quiet your cell phones during class and refrain from text messaging and chatting with your classmates during lectures. Please use your laptops, notebooks, and electronic tablets for class purposes only.

### **Ethics:**

Academic integrity is vitally important to the mission of the university. Academic integrity is a basic principle that requires that students only take credit for ideas and efforts that are their own. Cheating, plagiarism, and other forms of academic dishonesty is defined as the submission of materials in assignments, examinations, or other academic work that a student has submitted for a course may not be resubmitted for credit in another course without the knowledge and advance permission of the instructor. For more information, visit <http://owl.english.purdue.edu/owl/resource/589/01/>. If you are caught cheating or plagiarizing in any way, you will receive a failing score on that assignment. There will be no exceptions. If you are unsure about what constitutes plagiarism, contact the instructor(s) for assistance. As with all members of the university community, the university requires students to conduct themselves with honesty and responsibility, and to respect the rights of others. Conduct that unreasonably interferes with the learning environment or that violates the rights of others is prohibited by the standards and guidelines collectively described as the Student Code of Conduct. For more information, refer to the *Students Rights and Responsibilities* at <https://alaska.edu/bor/policy/09-02.pdf>

## **10. Evaluation:**

### **FMH Reflections (10pts/day = 100 points total):**

Students will keep notes during visits to FMH. Students are encouraged to record relevant information, key ideas and facts present by FMH staff, lecturers during activities. Each day, students will write a 200 word reflection based on their experience at FMH. Format and grading criteria will be discussed at the beginning of the course. Missed days cannot be made up.

### **Lab Notebooks Entries (10pts/day = 100 points total):**

Students are required to keep a laboratory notebook during lab activities. Notebooks will follow a specific format and scored using a rubric which will be provided at the beginning of the course. Missed days cannot be made up.

### **Poster Presentation (100 points total):**

At the end of the two weeks course, each student is required to prepare and present a poster at the ORCA conference showing laboratory technique he/she mastered during laboratory exercise. The poster presentation will be 15-20 minutes long and will also include time for discussion; posters will be evaluated by instructors and peers using a grading rubric.

### **Grading:**

| <u>Graded Item</u>             | <u>Points per Session</u> | <u>Total Points Possible</u>       |
|--------------------------------|---------------------------|------------------------------------|
| <b>1. FMH Reflections</b>      | 10                        | 100                                |
| <b>2. Lab Notebook Entries</b> | 10                        | 100                                |
| <b>3. Poster Presentation</b>  | 100                       | 100                                |
|                                |                           | <b>Total = 300 Possible Points</b> |

The grading for the course will be based on the components outlined above. Final letter grades will be assigned as follows:

|             |             |
|-------------|-------------|
| ≥ 94% = A   | 73-76% = C  |
| 90-93% = A- | 70-72% = C- |
| 87-89% = B+ | 67-69% = D+ |
| 83-86% = B  | 63-66% = D  |
| 80-82% = B- | 60-62% = D- |
| 77-79% = C+ | < 60% = F   |

## 11. Student Resources and Support Services

We are here to help you enjoy and succeed in this class. Take advantage of our office hours or make an appointment if you have concerns or questions. Every qualified student is welcome in my classroom. As needed, I am happy to work with you, disability services, veterans' services, rural student services, etc to find reasonable accommodations. Students at this university are protected against sexual harassment and discrimination (Title IX), and minors have additional protections. As required, if I notice or am informed of certain types of misconduct, then I am required to report it to the appropriate authorities. For more information on your rights as a student and the resources available to you to resolve problems, please go the following site: [www.uaf.edu/handbook/](http://www.uaf.edu/handbook/)

**Disability Services provided through The Office of Disability Services at UAF** (203 Whitaker/Fire Station, 474-7043) implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials. Your instructor(s) will work with the Office of Disabilities Services to provide reasonable accommodations to students with documented disabilities. If applicable, please make arrangements with your instructor(s) within the first few weeks of classes. If you have not already done so, you will also need to contact UAF's Office of Disability Services by email at [uaf-disabilityservices@alaska.edu](mailto:uaf-disabilityservices@alaska.edu), by phone at (907) 474-5655, or by TTY at (907) 474-1827.

### Informational Technology (IT) Services

The Office of Information Technology is responsible for UAF's telecommunications, network infrastructure, and academic technology support services.

Phone: (907) 450-8300  
Toll Free: (800) 478-8226  
Email: [helpdesk@alaska.edu](mailto:helpdesk@alaska.edu)

Website: <http://www.alaska.edu/oit/>

**The Writing Center** (Gruening 8<sup>th</sup> floor, 474-5314) will help you prepare and print your papers.

**Student Support Services** (<http://www.uaf.edu/sssp/>) (Greening 5<sup>th</sup> floor, 474-6844) are available to students who meet federal TRIO guidelines: low-income OR first-generation college OR have a documented disability. Services include: 1) free tutorial services; 2) small study groups; 3) academic advising, mentoring, and personal support; 4) direct financial assistance to qualified Pell Grant recipients; 5) use of laptop computers, labs, and other technology resources; and 6) cultural and social engagement.

### **Personal Safety and Health**

Diminished mental health, including significant stress, mood changes, excessive worry, or problems with eating and/or sleeping can interfere with optimal academic performance. The source of symptoms might be strictly related to your course work; if so, please speak with your instructor. However, problems with relationships, family worries, loss, or a personal struggle or crises can also contribute to decreased academic performance.

UAF provides mental health services to support the academic success of students. The Student Health and Counseling Center offer low cost, confidential services to help you manage personal challenges. Treatment for mental health problems is effective. More information and resources are located at <http://www.uaf.edu/chc/>. *Immediate help (24/7) is available through Alaska Careline: 877-266-4357 or at [www.carelinealaska.com](http://www.carelinealaska.com).*

The Student Health and Counseling Center (2<sup>nd</sup> floor of the Whitaker Building/Fire Station, 474-7043, open Monday – Friday 8 am – 5 pm). Students enrolled for at least nine credits can receive up to six free counseling sessions.

**Veterans Services/Veterans Resource Center** (111 Eielson, 474-2475). There are VA certifying officials in Financial Aid, as well as military and veteran points of contact in the offices of Admissions and the Registrar and Career Services. These services are here to foster a smooth transition from military to civilian life. [pchokenson@alaska.edu](mailto:pchokenson@alaska.edu) or visit Veterans Services on the web <http://www.uaf.edu/veterans/> or <http://www.facebook.com/UAFVA>

**Speaking Center** (email [fyspeak@gmail.com](mailto:fyspeak@gmail.com) or call 907-474-5470) offers students help in conceiving, organizing, writing, delivering, and refining an individual or group presentation. Student may have their presentations digitally recorded for their own viewing.

### **Harassment and Title IX**

University of Alaska Board of Regents have clearly stated in BOR Policy that discrimination, harassment and violence will not be tolerated on any campus of the University of Alaska. If you believe you are experiencing discrimination or any form of harassment including sexual harassment/ misconduct/assault, you are encouraged to report that behavior. If you report to a faculty member or any university employee, they must notify the UAF Title IX Coordinator about the basic facts of the incident. Your choices for reporting include:

1. You may access confidential counseling by contacting the UAF Health & Counseling Center at 474-7043;
2. You may access support and file a Title IX report by contacting the UAF Title IX Coordinator at 474-6600;
3. You may file a criminal complaint by contacting the University Police Department at 474-7721.



## FMH Reflection Grading Rubric

| Category                             | Excellent (5 points)  | Good (4-3 points)   | Fair (2 points)   | Poor (1 point)   |
|--------------------------------------|---|---|---|--|
| 1. Details                           | Date clearly written and easy to find.  | Date clearly written.   | Date difficult to find or poorly written.   | No date.   |
| 2. Professionalism & Acknowledgement | Speakers name and affiliation/credentials or contact information (if given), and any other introductory information recorded and spelled correctly. | Speakers name and affiliation/credentials and any some introductory information recorded and spelled correctly. | Speakers name and affiliation/credentials recorded.   | No speaker information recorded, or grossly misspelled or otherwise incorrect. |
| 3. Quality of Information            | Clearly relates to main topic, supporting details or examples.  | Information relates to main topic, provides some details and examples.  | Information relates to main topic, little to no details and/or examples.                            | Information has little to do with main topic                                   |
| 4. Structure & Organization          | Writing is clear, concise, well organized. Thoughts are expressed in a logical manner.  | Writing is mostly clear and fairly well organized. Thoughts are expressed in a logical manner.                  | Writing is unclear, and/or not very well organized. Thoughts are not expressed in a logical manner. | Writing is unclear, and disorganized. Thoughts make little to no sense.        |
| 5. Reflection                        | In depth reflection on topic, including supporting details, examples, and applications to real world / self.  | General reflection on topic, some supporting details, examples, and applications to real world / self.          | Minimal reflection on topic, few details and examples.  | Lack of reflection, no details, off topic.                                     |

## Laboratory Notebook Grading Rubric

| Category                             | Excellent (5 points)   | Good (4-3 points)  | Fair (2 points)  | Poor (1 point)  |
|--------------------------------------|--|--|--|---|
| 1. Details                           | Dates for all events clearly written and easy to find.<br>Cover of notebook clearly and comprehensibly labeled.<br>Table of contents included, clearly written, and accurate.<br>Page numbers included   | Dates for all events clearly written.<br>Cover of notebook clearly and comprehensibly labeled.<br>Table of contents included and accurate.<br>Page numbers included  | Dates for all events clearly written.<br>Cover of notebook labeled.<br>Table of contents included.<br>Page numbers included  | No dates, or missing significant number of dates.<br>No labeling on cover of notebook.<br>No table of contents.<br>No page numbers. |
| 2. Professionalism & Acknowledgement | Lab partner(s) name(s) and mentor(s) names(s) and contact information (if given), and any other introductory information recorded and spelled correctly. After first full notation, can use initials if noted next to full name(s) in at least first notation. | Lab partner(s) name(s) and mentor(s) names(s) and contact information (if given), and spelled correctly. After first full notation, can use initials if noted next to full name(s) in at least first notation.                             | Most partner(s) name(s) and mentor(s) names(s) and contact information (if given). After first full notation, can use initials if noted next to full name(s) in at least first notation.                                 | No names recorded, or grossly misspelled or otherwise incorrect.  |
| 3. Technique Information             | Technique is clearly listed<br>Purpose and expected outcome<br>Rationale behind test, some insight into why it works<br>At least one fully cited literature sources or other historical references   | Technique is clearly listed<br>Purpose and expected outcome<br>Rationale behind test<br>Some sources or other historical references  | Technique is clearly listed<br>Purpose and expected outcome<br>Rationale behind test   | Technique not clearly listed or no background or rational or expected outcomes listed   |
| 4. Protocol                          | Clearly listed and organized, reproducible, can be stapled/taped/glued in, but must be complete<br>Appropriate results/data generated and clearly noted<br>Any potential deviations listed and explained (as applicable)                                       | Clearly listed and understandable at level can be reproduced, can be stapled/taped/glued in, but must be complete<br>Appropriate results/data generated and clearly noted<br>Any potential deviations listed and explained (as applicable) | Clearly listed and understandable at level can be reproduced, can be stapled/taped/glued in, but must be complete<br>Appropriate results/data generated<br>Any potential deviations listed and explained (as applicable) | No protocol, or is not comprehensive, cannot be reproduced, or otherwise incomplete.<br>No data/results of any sort listed          |
| 5. Reflection Summarized results     | Results given. Comparisons to literature/expected data given when possible.<br>Broader connections/implications/as sociations with real-world or individual research.  | Results given. Comparisons to literature/expected data given when possible. Some broader impacts or other implications/associations listed.  | Results given. Limited comparisons to literature/expected data given when possible. Few or limited connections outside the experiment.   | No results given. No comparisons to literature/expected data.<br>No or limited connections outside the experiment.                  |



### BLaST BOOT CAMP JUDGING SHEET – FMH/LAB BOOT CAMP

Student Name:

Poster Title:

Comments:

Additional Comments may be written on back of sheet. Directions: CIRCLE the appropriate number of points earned in each judging category. Only 1 per row.

| JUDGING CATEGORY-Total Pts   |  | FAIR  | AVERAGE        | GOOD  | EXCELLENT |
|--|--|-------|----------------|-------|-----------|
| <b>RESEARCH TOPIC – 20pts</b><br>Identifies field of study<br>Clear and focused background(s)<br>Explains purpose of and data generated by techniques  |  | 12    | 13 14 15 16    | 17 18 | 19 20     |
| <b>DESIGN &amp; METHODOLOGY – 10pts</b><br>Well designed use of techniques<br>Combinations of data from techniques when appropriate<br>Variables and controls defined, appropriate, complete   |  | 3     | 4 5 6          | 7 8   | 9 10      |
| <b>EXECUTION – 15pts</b><br>Systematic analysis<br>Appropriate application of methods<br>Sufficient data collected to show proficiency with technique  |  | 7     | 8 9 10 11      | 12 13 | 14 15     |
| <b>CREATIVITY – 15pts</b><br>Poster demonstrates creativity in presentation  |  | 7     | 8 9 10 11      | 12 13 | 14 15     |
| <b>PRESENTATION/POSTER – 15pts</b><br>Logical organization of material<br>Clarity of graphics and legends<br>Supporting documentation displayed  |  | 7     | 8 9 10 11      | 12 13 | 14 15     |
| <b>PRESENTATION/INTERVIEW – 25pts</b><br>Clear, concise, thoughtful responses to questions<br>Understanding of basic science relevant to project<br>Understanding interpretation and limitations of results and conclusions<br>Degree of independence in conducting project<br>Recognition of potential impact in science, society and /or economics<br>Quality of ideas for further research<br>For team projects, contributions to and understanding of project by all members |  | 15 16 | 17 18 19 20 21 | 22 23 | 24 25     |
| <b>TOTALS</b>  | <b>100 POINTS</b>  |       |                |       |           |
| <b>Instructors Initials</b> _____  | <b>COMBINED TOTAL<br/>(TO BE COMPLETED AT SCORING TABLE)</b> |       |                |       |           |