Executive Summary

Request for Authorization to Implement a BS and Minor in Emergency Medical Services

<table>
<thead>
<tr>
<th>Requested by</th>
<th>Department of Emergency Medicine, College of Medicine Tucson</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIP Code</td>
<td>51.0904 Emergency Medical Technology/Technician (EMT Paramedic)</td>
</tr>
<tr>
<td>Purpose of Program</td>
<td>The degree program is designed to provide paramedics with the scientific background, clinical expertise and leadership skills needed to practice at the highest level and become leaders in their field. The curriculum aims to foster the development of future healthcare system leaders who are able to promote a civil minded approach to the management and oversight of critical healthcare infrastructure. The proposed degree program engages with community stakeholders at all levels to promote high quality education for EMS providers. As part of the EMS agenda for 2050, EMS leaders across the country have promoted advanced training and a requirement of an associates or bachelor’s degree for all EMS providers. This proposed program gives the University of Arizona a unique opportunity to collaborate with fire chiefs and other EMS system leaders to improve the quality of EMS providers. At the state level and locally, this program gives the university the opportunity to partner with EMS training programs offered at the community college level. Applicants to the program must have current certification at the state or national level as a paramedic. The program was developed to meet the unique educational needs of the practicing paramedic, with courses available on campus and online. The program builds on prior paramedic education by providing the basic science background necessary to adapt to the ever-changing medical field, the advanced clinical knowledge necessary to understand the full range of subspecialty EMS roles, and the leadership skills necessary to succeed in the healthcare industry. Students will choose from a group of courses offering Critical Care, Advanced Pediatric Care, Wilderness Medicine, Medical Management of Hazardous Material Exposure, Tactical, Search, and Rescue, in order to broaden their clinical skills. Students are required to complete an EMS field internship, leadership course, and a senior capstone project. Upon successful completion of the program, students will be able to demonstrate the following learning outcomes:</td>
</tr>
<tr>
<td>1. Be able to provide exceptional prehospital clinical care for:</td>
<td></td>
</tr>
<tr>
<td>i) Patients with common prehospital medical complaints</td>
<td></td>
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<td>ii) Patients exposed to hazardous materials</td>
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<tr>
<td>iii) Patients in a limited resource environment</td>
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<tr>
<td>iv) Patients with critical illness</td>
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<tr>
<td>v) Children with emergency medical conditions</td>
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</tbody>
</table>
2. Read and apply new scientific evidence to prehospital patient care.

3. Demonstrate the ability to lead a team of first responders to provide effective patient care.

<table>
<thead>
<tr>
<th>Source(s) of Funding</th>
<th>Continuing Sources:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UG RCM Revenue</td>
</tr>
</tbody>
</table>

Anticipated Faculty/Staff:
- .5 FTE faculty time increase in the next 5 years.
- Program manager, academic advisor, and course coordinator over the next 3 years.

<table>
<thead>
<tr>
<th>5-year projected annual enrollment</th>
<th>1st year</th>
<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
<th>5th year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
</tr>
</tbody>
</table>

Approvals:

- ABOR: 2/08/2019
- Undergraduate Council: 3/12/2019
- Graduate Council: N/A
- CAAC: 12/18/2018
- Provost’s Council: 3/18/2019
- Faculty Senate: 3/18/2019
New Academic Program Workflow Form

General

**Proposed Name:** Emergency Medical Services

Transaction Nbr: 00000000000011

Plan Type: Major

Academic Career: Undergraduate

Degree Offered: Bachelor of Science

Do you want to offer a minor?  Y

Anticipated 1st Admission Term: Fall 2019

Details

Department(s):

**MDTC**

<table>
<thead>
<tr>
<th>DEPTMNT ID</th>
<th>DEPARTMENT NAME</th>
<th>HOST</th>
</tr>
</thead>
<tbody>
<tr>
<td>0750</td>
<td>Emergency Medicine</td>
<td>Y</td>
</tr>
</tbody>
</table>

Campus(es):

**MAIN**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>TUCSON</td>
<td>Tucson</td>
</tr>
</tbody>
</table>

**Admission application terms for this plan:** Spring: Y Summer: Y Fall: Y

**Plan admission types:**

Freshman: Y  Transfer: Y  Readmit: Y  Graduate: N

Non Degree Certificate (UCRT only): N

Other (For Community Campus specifics): N

**Plan Taxonomy:** 51.0904, Emergency Medical Technology/Technician (EMT Paramedic).
Conditions for Admission/Declaration for this Major:

Bachelors of Science in Emergency Medical Services:
- Applicants to this program must have current certification at the state or national level as a paramedic.

Minor in Emergency Medical Services
- Applicants to this program must have current certification at the state or national level as an EMT.

Requirements for Accreditation:

There are no current state or national requirements for accreditation of this degree program. There are state requirements for EMT training programs which have already been met, (the University of Arizona Department of Emergency Medicine is a state certified EMT training program). For paramedic training programs there is both a state training program certification process and a national training program accreditation requirement. However as this program will not provide primary paramedic training this program state certification and national accreditation is not required.

Program Comparisons

University Appropriateness

The proposed degree program in emergency medical services will promote the strategic goals of the University of Arizona, through increased collaboration with community partners, student engagement using hands on learning, and preparing students with practical skills for the workforce. Through this program the University of Arizona continues the tradition of innovation and leadership in healthcare by promoting a program that is unique because it incorporates the best of current programs at other institutions into a single degree program. This clinically oriented degree program gives graduates a work ready qualification for multiple jobs in the healthcare industry.

The proposed degree program engages with community stakeholders at all levels to promote high quality education for EMS providers. As part of the EMS agenda for 2050 EMS leaders across the country have promoted advanced training and a requirement of an associates or bachelors degree for all EMS
providers. This proposed program gives the University of Arizona a unique opportunity to collaborate with fire chiefs and other EMS system leaders to improve the quality of EMS providers. At the state level and locally, this program gives the university the opportunity to partner with EMS training programs offered at the community college level. The partnerships with the Community College programs could serve as a pathway for this proposed program.

The proposed degree program also offers several advantages for students. For students enrolled in the minor program of study they have the opportunity to develop clinical skills at an early stage thus increasing their opportunities to succeed at future endeavors in the health care industry and providing them with the skills necessary to obtain a high quality job after graduation should they not be able to immediately matriculate into the graduate medical education program of their choice. For students enrolled in the bachelors degree program this program will foster the development of future healthcare system leaders who are able to promote a civil minded approach to the management and oversight of critical healthcare infrastructure.

Arizona University System

<table>
<thead>
<tr>
<th>NBR</th>
<th>PROGRAM</th>
<th>DEGREE</th>
<th>#STDNTS</th>
<th>LOCATION</th>
<th>ACCRDT</th>
</tr>
</thead>
</table>

Peer Comparison

The UA degree program is designed to provide paramedics with the scientific background, clinical expertise and leadership skills needed to advance their careers in the growing health-care industry.

The University of Arizona Bachelor’s Degree Program in Emergency Medical Services provides paramedics with the education and skills necessary to practice at the highest level and become leaders in their field. This program specifically was developed to meet the unique educational needs of the practicing paramedic, with courses available on campus and online. This degree program builds on prior paramedic education by providing the basic science background necessary to adapt to the ever-changing medical field, the advanced clinical knowledge necessary to understand the full range of subspecialty EMS roles, and the leadership skills necessary to succeed in the health-care industry.

The Bachelor of Science in Emergency Medical Services students must have completed a paramedic training program and have state or national certification as a paramedic to enroll. Transfer credits from other institutions will be accepted or credit given to those who hold a current state or national paramedic certification.

The NAU degree program offers an online bachelor's degree completion program in Paramedic Care. The B. S. Health Sciences program was developed to provide a convenient and flexible way for students and working professionals to
complete their bachelor degree.

The UA degree program target careers are - EMS Service Providers, EMS System Leaders, EMS or Fire agency leaders, Health Care system leaders, Public Health leaders and Disaster Response and Preparedness. The NAU program target careers are - Community Colleges, County health departments, Hospitals and Indian Health Services.

The UA program emphasizes science and leadership and offers a wide variety of selectives designed to enable the student to pursue personal career goals. The core content of the degree also offers a wide variety of selectives developed and taught by emergency medicine physicians practicing at the UA. NAU emphasizes more a health lifestyles approach.

The NAU program requires students to be currently pursuing or be on the waitlist for an associate's degree in an allied health discipline through a regionally accredited college. UA offers a full bachelor's degree that enables the student to transfer credits or complete the full degree with UA. UA's only prerequisite is that the student hold a national or state certification as a paramedic.

**Faculty & Resources**

**Faculty**

Current Faculty:

<table>
<thead>
<tr>
<th>INSTR ID</th>
<th>NAME</th>
<th>DEPT</th>
<th>RANK</th>
<th>DEGREE</th>
<th>FCLTY/%</th>
</tr>
</thead>
<tbody>
<tr>
<td>17701592</td>
<td>Joshua Gaither</td>
<td>0750</td>
<td>Assoc. Prof</td>
<td>Doctor of Medicine</td>
<td>.20</td>
</tr>
<tr>
<td>00978385</td>
<td>Amber Rice</td>
<td>0750</td>
<td>Assit. Prof</td>
<td>Doctor of Medicine</td>
<td>.10</td>
</tr>
<tr>
<td>07600801</td>
<td>Hans Bradshaw</td>
<td>0750</td>
<td>Assit. Prof</td>
<td>Doctor of Medicine</td>
<td>.20</td>
</tr>
<tr>
<td>22059306</td>
<td>Kubwimana Mhayamaguru</td>
<td>0750</td>
<td>Assit. Prof</td>
<td>Doctor of Medicine</td>
<td>.10</td>
</tr>
<tr>
<td>22053282</td>
<td>Jennifer Smith</td>
<td>0750</td>
<td>Assit. Prof</td>
<td>Doctor of Medicine</td>
<td>.10</td>
</tr>
<tr>
<td>00945360</td>
<td>Aaron Leetch</td>
<td>0750</td>
<td>Assit. Prof</td>
<td>Doctor of Medicine</td>
<td>.10</td>
</tr>
</tbody>
</table>

Additional Faculty:

We anticipate .5 FTE Faculty time increase in the next 5 years.

**Current Student & Faculty FTE**

<table>
<thead>
<tr>
<th>DEPARTMENT</th>
<th>UGRD HEAD COUNT</th>
<th>GRAD HEAD COUNT</th>
<th>FACULTY FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0750</td>
<td>0</td>
<td>0</td>
<td>.01</td>
</tr>
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</table>
Projected Student & Faculty FTE

<table>
<thead>
<tr>
<th>DEPT</th>
<th>UGRD HEAD COUNT</th>
<th>GRAD HEAD COUNT</th>
<th>FACULTY FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0750</td>
<td>10 20 30</td>
<td>0 0 0</td>
<td>.80 .80 1.30</td>
</tr>
</tbody>
</table>

Library

Acquisitions Needed:

Possible journal purchase by UA for pre-hospital care and emergency medical services for students to review for reference during the mandatory senior capstone project. Associate Librarian (Faculty) Cynthia Elliott has been contacted for recommendations.

Physical Facilities & Equipment

Existing Physical Facilities:

Current classrooms are adequate for the needs of this program. Some courses may require moveable tables and chairs and will be requested when the course is scheduled. No laboratories, physical equipment or computer facilities will be necessary.

Additional Facilities Required & Anticipated:

The program is able to utilize the existing UA campus rooms and equipment. Additional computers and teaching aids may be required in the future to accommodate staff and faculty based on student enrollment.

Other Support

Other Support Currently Available:

Program Coordinator is currently available.

Other Support Needed over the Next Three Years:

Program Manager, Academic Advisor, Course Coordinator.

Comments During Approval Process

12/4/2018 10:14 AM

JGAITHER

Comments

Approved.
<table>
<thead>
<tr>
<th>Comments</th>
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<tbody>
<tr>
<td>Approved.</td>
</tr>
</tbody>
</table>
I. PURPOSE AND NATURE OF THE MAJOR—provide a description for the proposed program. Include the purpose, nature, and highlights. The description will be displayed on the advisement report and should match departmental and college websites, handouts, promotional materials, etc.

**Description: Bachelor of Science in Emergency Medical Services**

*This degree program is designed to provide paramedics with the scientific background, clinical expertise and leadership skills needed to advance their careers in the growing health-care industry.*

The University of Arizona Bachelor’s Degree Program in Emergency Medical Services provides paramedics with the education and skills necessary to practice at the highest level and become leaders in their field. This program specifically was developed to meet the unique educational needs of the practicing paramedic, with courses available on campus and online. This degree program builds on prior paramedic education by providing the basic science background necessary to adapt to the ever-changing medical field, the advanced clinical knowledge necessary to understand the full range of subspecialty EMS roles, and the leadership skills necessary to succeed in the health-care industry.

The Bachelor of Science in Emergency Medical Services students must have completed a paramedic training program and have state or national certification as a paramedic to enroll. Transfer credits from other institutions will be accepted or credit given to those who hold a current state or national paramedic certification. To build on their paramedic knowledge base, students will subsequently complete several core EMS courses in the following core areas: A) foundational science (math, science, business or technical writing, B) advanced EMS systems and patient care (EMS systems, subspecialty EMS care and an EMS capstone project), and C) leadership and health-care systems.

To broaden their clinical skills, students will choose from a group of courses offering Critical Care, Advanced Pediatric Care, Wilderness Medicine, Medical Management of Hazardous Material Exposure, Tactical, Search and Rescue, etc. Students then
complete an EMS field internship, leadership course and complete a senior capstone project.

II. MAJOR REQUIREMENTS— complete the table below to list the major requirements, including minimum number of credit hours, required core, electives, and any special requirements, including sub-plans, theses, internships, etc. Note: information in this section must be consistent throughout the proposal documents (comparison charts, department checklists, curricular/assessment map, etc.). Delete the EXAMPLE column before submitting/uploading. Complete table found in Appendix A if requesting a corresponding minor.

| Total units required to complete degree | 120 |
| Upper-division units required to complete degree | 42 |
| Foundation courses | |
| Second language | 2nd Semester Proficiency |
| Math | M-Strand |
| General education requirements | 2 courses/ 6 units- Tier I 150 (INDV) (per college exception)  
2 courses/ 6 units-Tier I 160 (TRAD) (per college exception) |
| | 3 units-Tier II Arts  
1 course/ 3 units-Tier II Humanities  
1 course/ 3 units-Tier II Individuals and Societies  
0 courses/0 units-Tier II Natural Sciences (per college exception) |
<p>| Pre-major? (Yes/No. If yes, provide requirements). Provide email(s)/letter(s) of support from home department head(s) for courses not owned by your department. | No |
| List any special requirements to declare or gain admission to this major (completion of specific coursework, minimum GPA, interview, application, etc.) | Students must hold a current national or state certification as a Paramedic. A maximum of 42 paramedic units may be transferred |
| Major requirements | |</p>
<table>
<thead>
<tr>
<th>Requirement</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum # of units required in major (units counting towards major units and major GPA)</td>
<td>51</td>
</tr>
<tr>
<td>Minimum # of upper-division units required in the major (upper division units counting towards major GPA)</td>
<td>37</td>
</tr>
<tr>
<td>Minimum # of residency units to be completed in the major</td>
<td>20</td>
</tr>
<tr>
<td>Required supporting coursework (courses that do not count towards major units and major GPA, but are required for the major). Courses listed must include subject code, units, and title. Include any limits/restrictions needed (house number limit, etc.). Provide email(s)/letter(s) of support from home department head(s) for courses not owned by your department.</td>
<td></td>
</tr>
<tr>
<td>Major requirements (list all required major coursework including major core, major electives, sub-plan core, and sub-plan electives; courses count towards major units and major GPA) Courses listed must include course prefix, number, units, and title. Mark new coursework (New). Include any limits/restrictions needed (house number limit, etc.). Provide email(s)/letter(s) of support from home department head(s) for courses not owned by your department.</td>
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</tbody>
</table>

**Core Science Selective:** any to total 11 units
- PSIO 201 - Human Anatomy and Physiology I (4)
- PSIO 202 - Human Anatomy and Physiology II (4)
- PSIO 380 - Fundamentals of Human PSIO (4)
- MCB 181R - Introductory Biology I (3)
- CHEM 151 – General Chemistry I (4) or equivalent
- CHEM 152 - General Chemistry II (4) or equivalent

**Math Selective:** min 3 units
- SBS 200 – Introduction to Statistics for the Social Sciences (3)
- MATH 263- Introduction to Statistics and Biostatistics (3)
- BIOS 376 – Introduction to Biostatistics (3)
- CHS 476 – Research and Analysis of Health Data (3)
- EPID 309 – Introduction to Epidemiology (3)

**Communications Selective:** min 3 units
- ENGL 307 – Business Writing (3)
- ENGL 308 – Technical Writing (3)

**Healthcare Selective:** min 6 units
- CHS 306 - Interprofessional care (3)
- CHS 309 - Ethical Issues (3)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHPM 310</td>
<td>Health Care in US (3)</td>
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<tr>
<td>PHPM 407</td>
<td>Health Care Economics and Policy (3)</td>
<td></td>
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<tr>
<td>EHS 375</td>
<td>Introduction to Environmental and Occupational Health (3)</td>
<td></td>
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<tr>
<td>EHS 418</td>
<td>Introduction to Human Health Risk Assessment (3)</td>
<td></td>
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<tr>
<td>EHS 484</td>
<td>Fundamentals of Industrial and Environmental Health (3)</td>
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<tr>
<td>PHP 421</td>
<td>Introduction to Health and Law Ethics (3)</td>
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<tr>
<td>AEDV 310</td>
<td>Transitional Resiliency (3)</td>
<td></td>
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<tr>
<td>LDRV 302</td>
<td>Leadership Function (3)</td>
<td></td>
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<tr>
<td>LDRV 304</td>
<td>The Human Resource Function (3)</td>
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<tr>
<td>LDRV 401</td>
<td>leadership in a Diverse Environment (3)</td>
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<tr>
<td>LDRV 404</td>
<td>The Business Function (3)</td>
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<tr>
<td>LDRV 397</td>
<td>Workshops in Organizational Leadership (3) (Not currently scheduled)</td>
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</tr>
<tr>
<td>EMD 493</td>
<td>EMS Leadership (B or D) (3)</td>
<td></td>
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<tr>
<td>EMD 310</td>
<td>EMS Core Competencies (3)</td>
<td></td>
</tr>
<tr>
<td>EMD 350</td>
<td>Advanced EMS systems (3)</td>
<td></td>
</tr>
<tr>
<td>EMD 493 (A or C)</td>
<td>EMS Internship (3)</td>
<td></td>
</tr>
<tr>
<td>EMD 493 (B or D)</td>
<td>EMS Leadership (3)</td>
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<tr>
<td>EMD 498</td>
<td>EMS Capstone (new)(1-3)</td>
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<tr>
<td>EMD 410</td>
<td>Critical Care (new) (3)</td>
<td></td>
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<tr>
<td>EMD 420</td>
<td>Alternative Destinations (new) (3)</td>
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<tr>
<td>EMD 430</td>
<td>Wilderness Medicine (new) (3)</td>
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<tr>
<td>EMD 440</td>
<td>Pediatric EMS (new) (3)</td>
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<tr>
<td>EMD 450</td>
<td>EMS Special Operations (new) (3)</td>
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<tr>
<td>Internship, practicum, applied course requirements (Yes/No. If yes, provide description)</td>
<td>Yes, EMD 493 A/C (3 units) is a required course which provided a mentored field experience (internship) for students.</td>
<td></td>
</tr>
<tr>
<td>Senior thesis or senior project required (Yes/No. If yes, provide description)</td>
<td>Yes, Complete 1-3 units of EMD 498 Senior Capstone</td>
<td></td>
</tr>
<tr>
<td>Additional requirements (provide description)</td>
<td>As part of the EMS Capstone Project, students will prepare and submit a scientific publication or develop / revise a prehospital protocol based on new scientific evidence. Course credit of 1-3 units will be determined after submission of project proposal to the degree program advisor</td>
<td></td>
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<tr>
<td>Minor (specify if optional or required)</td>
<td>Optional.</td>
<td></td>
</tr>
<tr>
<td>Any double-dipping restrictions? (Yes/No. If yes, provide description)</td>
<td>No</td>
<td></td>
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</tbody>
</table>
### III. CURRENT COURSES

Using the table below, list existing courses included in the proposed major. If the courses listed belong to a department that is not a signed party to this implementation request, upload the department head’s permission to include the courses in the proposed program and information regarding accessibility to and frequency of offerings for the course(s). Upload letters of support/emails from department heads to the “Letter(s) of Support” field on the UAccess workflow. Add rows to the table, as needed.

<table>
<thead>
<tr>
<th>Course prefix and number (include cross-listings)</th>
<th>Units</th>
<th>Title</th>
<th>Course Description</th>
<th>Pre-requisites</th>
<th>Modes of delivery (online, in-person, hybrid)</th>
<th>Typically Offered (F, W, Sp, Su)</th>
<th>Dept signed party to proposal? (Yes/No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMD 197</td>
<td>4</td>
<td>Emergency Medical Technician</td>
<td>This workshop, EMD 197, provides the medical knowledge necessary to become an Emergency Medical Technician. EMD 197 will provide a brief introduction to EMS systems, the structure and history of EMS, and will focus on providing the fundamental knowledge necessary to become an EMT. With completion of EMD 197, students will have attained the required didactic training hours to meet the National Registry of Emergency Medical Technicians (NREMT) prescribed requirements for Emergency Medical Technicians (EMT).</td>
<td>None</td>
<td>In-person</td>
<td>Sp, Su</td>
<td>No</td>
</tr>
<tr>
<td>EMD 310</td>
<td>3</td>
<td>Emergency Medical Systems Core Competencies</td>
<td>This course will provide an in depth review of EMT and Paramedic knowledge and will allow students to recertify as an EMT, AEMT, or paramedic in the State of Arizona or using the National Registry of EMTs (NREMT) recertification process. Course topics will cover all didactic material/objectives required by the National Registry of EMTs (NREMT) for both EMTs and Paramedics. Available for Honors.</td>
<td>EMT or Paramedic Certification</td>
<td>hybrid</td>
<td>F</td>
<td>No</td>
</tr>
<tr>
<td>EMD 350</td>
<td>3</td>
<td>Advanced Emergency Medical Service Systems</td>
<td>The Advanced Emergency Medical Services course will cover the basics of EMS systems for University EMS service members and general student body. Course topics will include the history and foundation of EMS, EMS systems, state and regional EMS systems, trauma systems, emergency departments and EMS, medical oversight and accountability, administration/management/operations, system financing, communications, emergency medical dispatch, medical record documentation and EMS information systems, ambulance ground transport, inter-facility and specialty care transfer, air medical</td>
<td>None</td>
<td>hybrid</td>
<td>F,Sp</td>
<td>No</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Course Description</td>
<td>Prerequisites</td>
<td>Delivery Method</td>
<td>Terms</td>
<td>Availability</td>
<td></td>
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<tr>
<td>EMD 493A</td>
<td>Internship for EMS or EMT</td>
<td>This course is an internship course designed for current students working in EMS at the University of Arizona (general membership), or as an EMT while also a student at U of A. Students will be tasked with activities throughout the semester, and will report to the instructors on their progress. Students are expected to attend trainings, events, shifts, and other activities as assigned by their EMS agency.</td>
<td>Students must have EMT certification or in progress. Students must be approved by instructor.</td>
<td>Hybrid</td>
<td>Sp</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>EMD 493B</td>
<td>EMS Leadership Internship</td>
<td>This course is an internship course designed for leaders in EMS at The University of Arizona (UEMS chief, assistant chief, deputy chief, captains of training, logistics and personnel). Students will be tasked with leadership activities throughout the semester, and will report to the instructors on their progress.</td>
<td>Currently working in UEMS Program and approval by instructor.</td>
<td>Hybrid</td>
<td>Sp</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>EHS 418</td>
<td>Introduction to Human Health Risk Assessment</td>
<td>To enhance students’ knowledge and skills related to environmental risk assessment, including hazard assessment, exposure assessment, toxicity assessment, and risk characterization.</td>
<td>None</td>
<td>In person</td>
<td>F</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>EHS 484</td>
<td>Fundamentals of Industrial and Environmental Health</td>
<td>Introduction to the principles of occupational and environmental health, with emphasis on industrial hygiene aspects of recognition, evaluation, and control of environmental and industrial health hazards.</td>
<td>None</td>
<td>In person</td>
<td>F</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>AEDV 310</td>
<td>Transitional Resiliency</td>
<td>This course blends current research on resiliency, learning, and leadership in an integrative manner to foster individual leadership. Focus in on the: physical, psychological, and social systems of resiliency; psychological principles applied to learning and instructional design; and analysis of readings addressing practical and theoretical leadership principles.</td>
<td>None</td>
<td>On-line and in person at South Campus Distance Campus</td>
<td>F</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>LDRV 302</td>
<td>Leadership Function</td>
<td>This course will help students focus on the dynamics of the supervisory and leadership function in both private and public organizations. Students will gain an understanding of the cognitive roles that make up the supervisory/leadership process as well as how to apply supervisory and leadership theory to actual situations in the workplace.</td>
<td>None</td>
<td>South Campus, Online Campus, Distance Campus</td>
<td>F, Sp, Su</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>
supervisory/leadership process as well as how to apply supervisory and leadership theory to actual situations in the workplace.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
<th>Description</th>
<th>Prerequisites</th>
<th>Offered At</th>
<th>Offered</th>
<th>Online</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDRV 401</td>
<td>3</td>
<td>Leadership in a diverse environment</td>
<td>This course focuses on developing basic management skills to motivate and lead employees, improve organizational performance, and succeed amid diversity within the organization.</td>
<td>None</td>
<td>South Campus, Online Campus, Distance Campus</td>
<td>F</td>
<td>Yes</td>
</tr>
<tr>
<td>LDRV 404</td>
<td>3</td>
<td>The Business Function</td>
<td>This course focuses on broadening each student's understanding of business as well as the business goals and objectives needed to be successful in the workplace. It also emphasizes critical thinking and applying this process to the corporate world.</td>
<td>None</td>
<td>South Campus, Online Campus, Distance Campus</td>
<td>SP</td>
<td>Yes</td>
</tr>
<tr>
<td>PSIO 201</td>
<td>4</td>
<td>Human Anatomy and Physiology I</td>
<td>Study of structure and function of the human body. Topics include basic anatomical and directional terminology; fundamental concepts and principles of cell physiology; histology; the integumentary, skeletal, muscular and nervous systems; special senses. Primarily for majors in physiology, biology, and health professions.</td>
<td>None</td>
<td>In-person</td>
<td>F, SP, SU</td>
<td>Yes</td>
</tr>
<tr>
<td>PSIO 202</td>
<td>4</td>
<td>Human Anatomy and Physiology II</td>
<td>Study of structure and function of the human body. Topics include cardiovascular, lymphatic, respiratory, urinary, gastrointestinal, endocrine and reproductive systems. Primarily for majors in physiology, biology, and health professions</td>
<td>PSIO 201</td>
<td>In-person</td>
<td>F, SP, SU</td>
<td>Yes</td>
</tr>
<tr>
<td>PSIO 380</td>
<td>4</td>
<td>Fundamentals of Human Physiology</td>
<td>Designed to provide upper-division non-physiology majors with a working understanding of the fundamentals of human biological function, elucidating general principles of human physiology mechanism of regulation and the normal variations in human biology, while weaving daily-life applications throughout. A combination of lecture, small and large group discussions, and in-class activities will be utilized to provide an understanding of how the body works from the cellular to the organ system level. Not open to students that have completed PSIO 201 or PSIO 202 or if you are a PSIO major or PSIO minor or Pre-PSIO.</td>
<td></td>
<td>In person and online</td>
<td>F, Sp</td>
<td>Yes</td>
</tr>
<tr>
<td>MCB 181R</td>
<td>3</td>
<td>Introductory Biology I</td>
<td>Introduction to biology covers fundamental principles in molecular and cellular biology and basic genetics. Emphasis is placed on biological function at the molecular level, with a focus on the structure and regulation of genes, the structure and synthesis of proteins, how these molecules are integrated into cells, and how these cells are integrated into multicellular systems. Examples stem from current research in bacteria, plants, and</td>
<td>PPL 40+ or SAT I MSS 560+ or ACT Math 22+ or one course from Math 112, 113, 120R or</td>
<td>In person and online</td>
<td>F, SP, SU</td>
<td>Yes</td>
</tr>
</tbody>
</table>
animals (including humans) in the areas of cell biology, genetics, molecular medicine and immunology.

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
<th>Description</th>
<th>Prerequisites</th>
<th>Restrictions</th>
<th>Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBS 200</td>
<td>4</td>
<td>Introduction to Statistics for the Social Sciences</td>
<td>PPL 60+ or MCLG88+ or SAT I MSS 620+ or ACT MATH 26+r or MATH 107, 112, 113, 116, 120, 120R, 122B, 124m 125, 129, and 223. Test scores expire after 2 years</td>
<td>In person and online</td>
<td>F, SP, SU</td>
</tr>
<tr>
<td>BIOS 376 or CHS 476</td>
<td>3</td>
<td>Introduction to Biostatistics</td>
<td>Majors: Public Health, Pre-Public Health, Global Studies (Global Health) Physiology and Pre-Physiology. Minors: Public Health. Math 112 or higher</td>
<td>In person and online</td>
<td>F, SP</td>
</tr>
<tr>
<td>ENGL 307</td>
<td>3</td>
<td>Business Writing</td>
<td>Freshman English Composition: (ENGL 101 and 102) or (ENGL 103H and 104H) or (ENGL 107 and 108) or ENGL 109H.</td>
<td>In person, on line</td>
<td>F, SP</td>
</tr>
<tr>
<td>ENGL 308</td>
<td>3</td>
<td>Technical Writing</td>
<td>Freshman English Composition: (ENGL 101 and 102) or (ENGL 103H and 104H) or (ENGL 107 and 108) or ENGL 109H.</td>
<td>In person, on line</td>
<td>F, SP</td>
</tr>
<tr>
<td>CHS 306</td>
<td>3</td>
<td>Interprofessional Care</td>
<td>None</td>
<td>In person</td>
<td>F, SP</td>
</tr>
<tr>
<td>Course Code</td>
<td>Units</td>
<td>Course Title</td>
<td>Prerequisites and Additional Information</td>
<td>Ditributional Requirement</td>
<td>Schedule</td>
</tr>
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</tr>
<tr>
<td>CHS 309</td>
<td>3</td>
<td>Ethical Issues Common to the Helping Professions</td>
<td>This course examines ethical dilemmas common to paid health care professionals.</td>
<td>None</td>
<td>In person, on line</td>
</tr>
<tr>
<td>EHS 375</td>
<td>3</td>
<td>Introduction to Environmental and Occupational Health</td>
<td>This course introduces students to physical, chemical and biological hazards found in the environment and health risks associated with workplace and community exposure to them. Risks to special populations and mechanisms of reducing or controlling these risks are discussed.</td>
<td>Prerequisite or concurrent registration in EPID/CPH 309</td>
<td>In person, on line, hybrid</td>
</tr>
<tr>
<td>PHPM 310</td>
<td>3</td>
<td>Healthcare in the United States</td>
<td>This course describes the structure and function of the various private and public health care entities within the United States. Strengths and weaknesses related to cost, quality and access are analyzed. Basic economic theories that drive financing are also considered.</td>
<td>Two courses from Tier One- Individuals/Societies</td>
<td>In person, on line</td>
</tr>
<tr>
<td>PHPM 407</td>
<td>3</td>
<td>Healthcare Economics and Policy</td>
<td>Health Policy is examined from an economic perspective. Basic economic theories and their relationships to the structure and function of the United States Healthcare system are explored. Alternative health care systems and health care reforms are also evaluated.</td>
<td>Pre requisite or corequisite CPH 310</td>
<td>In person, on line</td>
</tr>
<tr>
<td>CHEM 151</td>
<td>4</td>
<td>General Chemistry I</td>
<td>Integrated lecture-lab course designed to develop a basic understanding of the central principles of chemistry that are useful to explain and predict the properties of chemical substances based on their atomic and molecular structure. Additionally, students will be introduced to modern laboratory techniques and participate in experimental activities that promote the development of basic and advanced science-process skills. The course is designed for students who require a strong foundation in general chemistry, such as science and engineering majors, pre-med and pre-pharmacy students.</td>
<td>PPL 50+ or SAT I MSS 590= or ACT MATH 24+ or one course from MATH 112, 113, 120R, 122B, 125, 129, or 223.</td>
<td>In person</td>
</tr>
<tr>
<td>CHEM 152</td>
<td>4</td>
<td>General Chemistry II</td>
<td>Continuation of CHEM 151. Integrated lecture-lab course designed to develop a basic understanding of the central principles of chemistry that are useful to explain and predict the properties of chemical substances based on their atomic and molecular structure. Additionally, students will be introduced to modern laboratory techniques and participate in experimental activities that promote the development of basic and advanced science-process skills. The course is designed for students who require a strong foundation in general chemistry, such as science and engineering majors, pre-medical and pre-pharmacy students.</td>
<td>CHEM 151 or 141/143. Pre or Co-registration of CHEM 142 and 1 of the following: Concurrent enrollment in UA Math 112, 113, 120R, 122B, 125, 129, or 223. Test scores expire after 2 years.</td>
<td>In person</td>
</tr>
<tr>
<td>Course Code</td>
<td>Type</td>
<td>Course Title</td>
<td>Description</td>
<td>Prerequisites</td>
<td>Delivery Mode</td>
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<tr>
<td>EPID 309</td>
<td>3</td>
<td>Introduction to Epidemiology</td>
<td>This course will introduce students to basic principles and methods used in epidemiology. The course will include basic research designs, estimating outcome measures, and establishing cause and effect and effectiveness of interventions to prevent and cure disease.</td>
<td>Math 112 of higher</td>
<td>In person, on line</td>
</tr>
<tr>
<td>PHP 421</td>
<td>3</td>
<td>Introduction to Public Health Law and Ethics</td>
<td>This course introduces undergraduate public health students to current and foundational issues in law and ethics that affect the policies and practices of public health. Students will develop the skills necessary to identify and appropriately assess legal and ethical issues that underlie the field of public health.</td>
<td>Majors: PHLBS, PHLBS2, BLSBA GLH, GLSBA2 GLH2, GLSBS GLHL, GLSBS2 GLHL2, or GLSBA GLHD. Junior and Senior Status.</td>
<td>On line</td>
</tr>
<tr>
<td>LDRV 397</td>
<td>1-3</td>
<td>Workshops in Organizational Leadership</td>
<td>The practical application of theoretical learning within a small group setting and involving an exchange of ideas and practical methods, skills, and principles for various topics that relate to the field of Organizational Leadership.</td>
<td>None</td>
<td>On line, in person and distance</td>
</tr>
<tr>
<td>LDRV 304</td>
<td>3</td>
<td>The Human Resource Function</td>
<td>This course focuses on developing basic human resource management skills to motivate and lead employees, improve organizational performance, and succeed amid diversity within the organization.</td>
<td>None</td>
<td>On line, in person and distance</td>
</tr>
</tbody>
</table>
IV. **NEW COURSES NEEDED** – using the table below, list any new courses that must be created to initiate the major. If specific course number is undetermined, please provide level, (ie CHEM 4**). Add rows as needed. Is a new prefix needed? If so, provide the subject description so Curricular Affairs can generate proposed prefix options.

<table>
<thead>
<tr>
<th>Course prefix and number (include cross-listings)</th>
<th>Units</th>
<th>Title</th>
<th>Course Description</th>
<th>Pre-requisites</th>
<th>Modes of delivery (online, in-person, hybrid)</th>
<th>Status*</th>
<th>Anticipated first term offered</th>
<th>Typically Offered (F, W, Sp, Su)</th>
<th>Dept signed party to proposal? (Yes/No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMD 430</td>
<td>3</td>
<td>Wilderness Medicine</td>
<td>This course provides EMT’s or Paramedics with the background knowledge and skills necessary to provide emergency medical care in wilderness or limited resource environments.</td>
<td></td>
<td>hybrid</td>
<td>D</td>
<td>Spring 2020</td>
<td>Sp</td>
<td>No</td>
</tr>
<tr>
<td>EMD 440</td>
<td>3</td>
<td>Advanced Prehospital Pediatric Care</td>
<td>This course will provide an overview of the initial assessment and emergency management of children according to pediatric assessment triangle. *Refer to addendum for full description.</td>
<td></td>
<td>hybrid</td>
<td>D</td>
<td>Fall 2019</td>
<td>F, Sp</td>
<td>No</td>
</tr>
<tr>
<td>EMD 493C</td>
<td>3</td>
<td>Internship</td>
<td>The course provides EMT’s or Paramedics a mentored clinic experience.</td>
<td>Only open to students who are currently working with the University EMS Program.</td>
<td>hybrid</td>
<td>D</td>
<td>Fall 2019</td>
<td>F, Sp</td>
<td>No</td>
</tr>
<tr>
<td>EMD 493D</td>
<td>3</td>
<td>Leadership</td>
<td>This course provides EMT’s or Paramedics a mentored leadership experience.</td>
<td>Open to students with clinical activity in a</td>
<td>hybrid</td>
<td>D</td>
<td>Fall 2019</td>
<td>F, Sp</td>
<td>No</td>
</tr>
<tr>
<td>Course Code</td>
<td>Credits</td>
<td>Course Title</td>
<td>Description</td>
<td>Prerequisites</td>
<td>Delivery</td>
<td>Term</td>
<td>Year</td>
<td>Days</td>
<td></td>
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<tr>
<td>EMD 498</td>
<td>1-3</td>
<td>EMS Capstone Project</td>
<td>This course will require the student to prepare and submit a scientific publication or develop/revise a prehospital protocol based on new scientific evidence.</td>
<td>Senior standing</td>
<td>hybrid</td>
<td>Fall 2019</td>
<td>F, Sp</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>EMD 420</td>
<td>3</td>
<td>Alternative patient Destinations</td>
<td>Provides EMT’s and Paramedics with the background knowledge to understand and implement community paramedicine and treat and refer programs across a variety of EMS response models and communities. Upon completion of this course students will meet Arizona requirements for those students with a certification as a paramedic to function as a Community Paramedic in a treat and refer program.</td>
<td>Certification as a paramedic</td>
<td>hybrid</td>
<td>Spring 2020</td>
<td>Sp</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>EMD 450</td>
<td>3</td>
<td>EMS Special Operations</td>
<td>This course will provide EMS special operations training in the areas of hazardous materials response, search and rescue, tactical EMS, and Military EMS.</td>
<td></td>
<td>hybrid</td>
<td>Fall 2020</td>
<td>F</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>EMD 410</td>
<td>3</td>
<td>Critical Care</td>
<td></td>
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<tr>
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<td></td>
<td>This course will provide students with the clinical knowledge and skills competencies necessary to provide prehospital critical care for both adult and pediatric patients. Upon completion of this course students will be prepared to sit for the Critical Care Paramedic exam.</td>
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<tr>
<td></td>
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<td>Certification as a paramedic</td>
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<td></td>
<td></td>
<td>hybrid</td>
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<td></td>
<td>D</td>
<td>Fall 2020</td>
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<td></td>
<td>F</td>
<td>No</td>
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</tr>
</tbody>
</table>

*In development (D); submitted for approval (S); approved (A)

Subject description for new prefix (if requested). Include your requested prefix, if any.:
V. **FOUR-YEAR PLAN** – provide a sample four-year degree plan that includes all requirements to graduate with this major and takes into consideration course offerings and sequencing. Refer to [Degree Search](#) for examples. Use generic title/placeholder for requirements with more than one course option (e.g. Upper Division Major Elective, Minor Course, Second Language, GE Tier 1, GE Tier 2). Add rows as needed.

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Semester 2</th>
<th>Semester 3</th>
<th>Semester 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course prefix and number</strong></td>
<td><strong>Units</strong></td>
<td><strong>Course prefix and number</strong></td>
<td><strong>Units</strong></td>
</tr>
<tr>
<td>Paramedic Certificate</td>
<td>20</td>
<td>Paramedic Certificate</td>
<td>20</td>
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<tr>
<td><strong>Total</strong></td>
<td>20</td>
<td><strong>Total</strong></td>
<td>20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 5</th>
<th>Semester 6</th>
<th>Semester 7</th>
<th>Semester 8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course prefix and number</strong></td>
<td><strong>Units</strong></td>
<td><strong>Course prefix and number</strong></td>
<td><strong>Units</strong></td>
</tr>
<tr>
<td>Science Selective</td>
<td>4</td>
<td>Science Selective</td>
<td>4</td>
</tr>
<tr>
<td>GE Tier II</td>
<td>3</td>
<td>GE Tier II</td>
<td>3</td>
</tr>
<tr>
<td>EMD 350</td>
<td>3</td>
<td>Health Selective</td>
<td>3</td>
</tr>
<tr>
<td>EMD 310</td>
<td>3</td>
<td>COM Selective</td>
<td>3</td>
</tr>
<tr>
<td>EMD Selective</td>
<td>3</td>
<td>EMD Selective</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16</td>
<td><strong>Total</strong></td>
<td>16</td>
</tr>
</tbody>
</table>
VI. STUDENT LEARNING OUTCOMES AND CURRICULUM MAP—describe what students should know, understand, and/or be able to do at the conclusion of this major. Work with Office of Instruction and Assessment to create a curricular map using Taskstream. Include your curricular map in this section (refer to Appendix B for sample Curriculum Map).
<table>
<thead>
<tr>
<th>Courses and Learning Activities</th>
<th>Outcome 1</th>
<th>Outcome 2</th>
<th>Outcome 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMD 310 Class assignments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMD 410 Class assignments</td>
<td></td>
<td></td>
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<tr>
<td>EMD 350 Class assignments</td>
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<tr>
<td>EMD 420 Class assignments</td>
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<td></td>
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<tr>
<td>EMD 430 Class assignments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMD 440/450 Class assignments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electives Communications, Math, Science</td>
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<td></td>
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<tr>
<td>Electives Leadership, Healthcare</td>
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<tr>
<td>Program Outcome Assessment Activities</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Student Survey</td>
<td></td>
<td></td>
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<tr>
<td>Indirect student survey</td>
<td></td>
<td></td>
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<tr>
<td>EMD 493A/B Internship-Direct</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>EMD 498 Capstone-Direct</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Team Lead EMD 493C/D or EMD 498</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Legend:**
- **I** Introduced
- **P** Practiced
- **A** Assessed
### Curriculum Map:

**VII. ASSESSMENT PLAN FOR STUDENT LEARNING** - using the table below, provide a schedule for program assessment of intended student learning outcomes 1) while students are in the program and 2) after completion of the major. Add rows as needed. Delete **EXAMPLE** row.

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Sources(s) of Evidence</th>
<th>Assessment Measures</th>
<th>Data Collection Points</th>
</tr>
</thead>
</table>
| **Outcome 1a**  
Be able to provide exceptional prehospital clinical care for patients with common prehospital medical complaints, | Students will be sent a “Student Self Evaluation” incoming survey, mid-program survey and program completion survey. | As part of the EMD 493A/B Internship the Faculty will evaluate and assess the student’s ability to provide clinical care in the prehospital setting for a wide spectrum of patients. | Mid and Post Internship  
EMD 493A  
EMD 493B |
| **Outcome 1b**  
Be able to provide exceptional prehospital clinical care for patients with unique or sub-specialty healthcare needs such as: patients exposed to hazardous materials, pediatric patients, patients who become ill in limited resource environments, etc. | Students will be sent a “Student Self Evaluation” incoming survey, mid-program survey and program completion survey. | As part of the EMD 493A/B Internship the Faculty will evaluate and assess the student’s ability to provide clinical care in the prehospital setting for a wide spectrum of patients. | Mid and Post Internship  
EMD 493A  
EMD 493B |
| **Outcome 2**  
Read and apply new scientific evidence to prehospital patient care. | Students will be sent a “Student Self Evaluation” incoming survey, mid-program survey and program completion survey. | As part of EMD 498 Capstone the degree program faculty will evaluate each student’s ability to evaluate and integrate scientific evidence into the care of patients in the prehospital setting through course grading system. | EMD 498:  
This course will require the student to prepare and submit a scientific publication or develop/revise a prehospital protocol based on new scientific evidence. |
| **Outcome 3**  
Demonstrate the ability to lead a team of first responders to provide effective patient care. | Students will be sent a “Student Self Evaluation” incoming survey, mid-program survey and program completion survey. | Team Lead EMD 493C/D or EMD 498/ Of enrolling in EMD 493, the sponsoring EMS agency will be sent a mid and post-internship student evaluation. This “Site Supervisor Leadership Survey” evaluation will assess the student’s ability to effectively lead an initiative or team. | Mid and Post Internship Survey  
completed by site Supervisor.  
EMD 493C/D or EMD 493 B/D |
VIII. **PROGRAM ASSESSMENT PLAN** - using the table below, provide a schedule for program evaluation 1) while students are in the program and 2) after completion of the major. Add rows as needed. Delete **EXAMPLE** rows.

<table>
<thead>
<tr>
<th>Assessment Measure</th>
<th>Source(s) of Evidence</th>
<th>Data Collection Point(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job Placement Statistics</td>
<td>Student/Alumni Survey</td>
<td>At graduation and as part of alumni survey and 2 years later</td>
</tr>
<tr>
<td>Academic Program Review</td>
<td>Reviewers’ responses</td>
<td>Every academic year</td>
</tr>
<tr>
<td>Student feedback review</td>
<td>Student program assessment surveys</td>
<td>End of semester review and annual review</td>
</tr>
</tbody>
</table>
IX. NEED FOR THE MAJOR—describe how the major fulfills the needs of the city, state, region, and nation. Provide market analysis data or other tangible evidence of the need for and interest in the proposed major. This might include results from surveys of current students, alumni, and/or employers or reference to student enrollments in similar programs in the state or region. Include an assessment of the employment opportunities for graduates of the program during the next three years.

Several factors drive the need for a bachelors degree program in Emergency Medical Services. As illustrated by discussions with several focus groups in the Tucson and Phoenix area in November of 2018 there is a significant demand at the employer level where employers of EMT’s and Paramedics see a lack of qualified workers in the coming years and “the need for university level training in their employees.” There is also a significant student demand for this degree from students who both seek to enter a highly competitive career field and who seek to promote once hired. Again recent focus group discussions illustrated this need with participants stating, “a bachelors degree is critical for promotion to the Captain and Battalion Chief level.” Finally, there is significant demand for higher education. The federal government and the National Highway Traffic Safety Administration (NHTSA) recently published, “The EMS Agenda for the Future, 2050,” report where leaders in emergency medical services called for the increase in both the availability and enrollment of paramedics in 4-year degree training programs. This degree program will meet the need for both higher-level knowledge and skill set requirements of paramedics, and the need to train paramedics to be the future leaders of our healthcare system.

Over the next decade, the US Bureau of Labor Statistics predicts that both the demand for highly qualified EMS providers will increase as will the competition to secure employment as health care providers and leaders in this industry. The United States Bureau of Labor Statistics estimates that from 2014-2024 employment for EMTs and Paramedics will grow at a rate of 24%, far above that of other occupations. From a baseline of more than 270,000 individuals who were employed as EMTs or Paramedics in 2014, this represents huge growth and potential demand for this program.

Curiously, as the demand for EMS providers (both EMTs and paramedics) increases so also has the competition for highly desirable jobs with large urban EMS agencies. In many rural areas there are not enough qualified paramedics and EMTs to fill open positions. However, in urban or other desirable communities, due to the nature of EMS work (24hr shifts which allow individuals increased personal time and good compensation packages), the field has become very competitive. In our needs analysis for this degree program, we conducted a recent survey of local, state and national EMS agencies (July 2017) finding that for every available position in the past two hiring cycles there were 30-160 applications for each position. In fact, applications for these positions are so competitive that one agency reported a staggering 150 applications for each position within 2 hours of opening. This has lead both students and employers to the conclusion that in order to obtain high quality employment/employees in this sector successful students must have a competitive advantage (see “student demand” below). We see this is one critical role for a degree program in EMS. By obtaining this degree students will obtain a competitive advantage when applying for these highly sought after careers.
Several other universities currently offer bachelor’s degrees in Emergency Medical Services or Paramedicine. In general, there are two broad formats for these programs: 1) clinically oriented, full 4-year programs that train students to be a paramedic and in the process award a bachelor’s degree for this training program. These programs have a strong clinical focus with fewer courses in general science or management/leadership and 2) an advanced study or 2-year Programs for students that are already a paramedic and enroll in the bachelor’s degree program to obtain additional health systems education and leadership. The goal of The University of Arizona Bachelors of Science in Emergency Medical Services program is to combine the strengths of both types of 4-year programs into a degree that is both clinically useful and meets the needs of a broad group of students.

Finally, there is significant support on a national level for increasing both the number of 4-year Emergency Medical Services training programs and the students whom enroll in these programs. As mentioned the newly released National Highway Safety Administration (NHTSA) reported titled “The EMS Agenda for the Future, 2050” highlights the need for both increased availability and enrollment of paramedics in 4-year degree training programs. Other published literature on the need for a 4-year emergency medical training programs highlight the need for variety in training “ Variety is the key to most EMS curricula…. consisting of a broad spectrum of courses in system management, science and paramedicine.” and the need for both addition program and the high demand for these programs.2

(2) Padjen, P. Emergency Medical Services Education - Evaluating the need for Undergraduate and Graduate Degree Programs in Wisconsin. Prehospital and Disaster Medicine. Dec. 2002; 17(S1).

As stated above we believe that this program will provide that competitive advantage to students in this rapidly growing field. In order to provide supporting evidence for this statement we conducted several surveys to verify this in our region. The following data was obtained from both past students and leaders in our EMS system.

A. In the current EMD courses offered (EMD 197, 350, 493A, 493B) we have had consistent increases in enrollment over the past three years. Using EMD 350 as an example we started with 2 students and over the past 3 years have increased to our current enrollment of 39 students.

B. Current student desire to enroll in a degree program: In the spring of 2017 there were 35 students enrolled in and completed EMD 350 and 30 enrolled in EMD 493A/B. All of those students that responded to a post course survey expressed interest in the EMS Certificate program.
A. Survey results: Of our EMD students over a three year period (136 students) who responded to our post course survey 90% stated that they would be interested in completing an EMS certificate program if offered.

B. Survey Comments included:
   a. “A certificate or degree in EMS would provide the knowledge and experience to give students a leg up when pursuing careers in medicine, public health, criminal justice, fire, social work and other public service fields.”
   b. “A certificate in EMS shows employers that these students are committed enough to connect their classroom studies to real world situations. EMS is one of the few fields in which all public service positions work together.”
   c. “Shadowing a physician restricts a pre-medical student to only seeing the medical point of view... Standing on scene as an EMS provider, you are next to a police officer and a fire fighter, you transport your patient to a hospital with social workers, nurses and physicians and you return back to your station to reflect on your community and the overarching public health issues that you may have just witnessed. A degree in EMS would take that impressive scene of public service collaboration into the classroom to expand student’s horizons and their opportunities for growth.
   d. “The interest is there.... EMS can be a career if not a gateway job to the fire sciences, nursing, PA, Med pathways. Catering to the demand would be beneficial for students and the institution.”
   e. “As a pre-health profession student, the knowledge that I need to be an EMT and do this job is directly related to what I will hopefully be doing in my future career. I feel that this is more valuable to my education and makes me a stronger student than other classes I have to take[n] because I am interested in the topics and have a desire to study on my own (besides the fact that having strong skills and knowledge is required for the job).
   f. “An [EMS degree] program at the UofA would be helpful because it would give many other people the option to learn these skills to take their interest and knowledge to the next level. It would also open up a new pathway into the health professions for those who want to explore the path but don't necessarily have their hearts set on medical school. I know a lot of people who want to gain more knowledge and experience before continuing down that road.”
   g. “For me, a certificate or degree would be helpful because I would like to attend medical school and while putting my time at UEMS on my resume might help me get a job as an EMT, that doesn't go on my transcript which is what medical schools will look at. I would like a certificate or degree program that is offered by the University of Arizona that I can participate in because I really love medicine, especially emergency medicine, so it would be nice to have something coming from the university showing my time in UEMS.”
We surveyed EMS community stakeholders across the state of Arizona in July of 2017. Respondents were Fire Chiefs and EMS system leaders who are responsible for both ensuring EMS providers render high quality patient care and that their system has and adequate number of EMS providers to fulfill the needs of their system. In general respondents stated both the demand for highly qualified EMTs and paramedics as well as the educational needs of EMTs and paramedics they hire are increasing.

C. Survey results:

a. 71% expect educational needs to increase over the next 1-2 years due to increased hiring (35%) & increased training to maintain competencies (71%).

b. 33% have difficulty obtaining qualified BLS professionals and 35% have difficulty finding qualified ALS professionals.

c. Estimated needs over next two years for the 14 agencies who responded: BLS – 523 providers, ALS – 148 providers

D. Survey Comments:

a. “When I look at hiring packages and see [The University of Arizona] UEMS [group], I know that the individual has the ability to operate in the field.”

b. “We need a training program that will provide university level content and university quality graduates to serve in our Fire and EMS system”

c. “Although we have approximately 30 applicants for every position in our fire service we consistently struggle to find applicants that have the educational background necessary to succeed. A certificate or degree program from the U of A would help us greatly in this area.”
X. **ANTICIPATED STUDENT ENROLLMENT** - complete the table below. What concrete evidence/data was used to arrive at the numbers?

<table>
<thead>
<tr>
<th>5-YEAR PROJECTED ANNUAL ENROLLMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Students</td>
</tr>
<tr>
<td>---------------------</td>
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<tr>
<td></td>
</tr>
</tbody>
</table>

Data/evidence used to determine projected enrollment numbers:

Estimates of student enrollment in the degree program are based off data obtained from Pima Community College (PCC) and other regional community colleges. In the past year, 77 paramedic students graduated from PCC with a paramedic certification and 63 indicated interest in an undergraduate degree in EMS. Of those, we estimated that 50% would enroll in the degree program. Forming a pool of approximately 30 local students per enrolling in the program. As the reputation of our program grows we estimate that similar community college programs across the state of Arizona will contribute 10-20 additional students.

*Survey results from PCC graduate survey in August 2018, 67 graduates responded:

- 95.45% indicated that they would be interested in this program if it was available today.
- When asked if they were to enroll in the degree program, why would they do so?
  A. “To get promoted in my current job” - 29.85%
  B. “To become a better paramedic” - 35.82%
  C. To improve the chances of gaining employment outside of the EMS field” - 23.88%
  D. “Other” - 10.45%

*PCC graduate student survey questions, additional comments and survey data: See [PCC Survey Tool Addendum](#) attachment

Here is some background:
Undergraduate Bachelors Degree program in Emergency Medical Services. This program is designed to allow students who have current Paramedic Certification and an Associates Degree to enter the UA and complete a Bachelors in 2 years using an online education model. This model would allow students to work full or part-time while completing their Bachelors Degree program.

1. Would you be interested in this program if it was available today? Yes/No
2. Would you prefer a 100% online degree program or a hybrid course with EMS skills in person?
   A. I would prefer 100% online
   B. I would prefer hybrid with some online and EMS skills in person
3. What percentage of the following degree program material would you like to see in each category? (Total 100%)
   - Advanced EMS knowledge and skills (HAZMAT, Critical Care, Peds, etc.)
   - Administration (business communication, budgets, etc.)
   - Research (bio-statistics, ethics, etc.)
   - Internships (Credit for on the job experience as a paramedic or EMS agency leader)
   - Leadership (management and leadership education)
4. If you were to enroll in this degree program (even if you answered NO above) why would you do so:
   - To get promoted in my current job
   - To become a better paramedic
   - To improve the chances of gaining employment outside of the EMS field
   - Other
5. If you chose "Other" please explain
6. The U.S. Department of Labor estimates that there will be a dramatic increase in the demand for paramedics over the next 10 years. Why, given demand, would you take this degree program?
7. Any other comments, suggestions and feedback is greatly appreciated.
XI. **ANTICIPATED DEGREES AWARDED** - complete the table below, beginning with the first year in which degrees will be awarded. How did you arrive at these numbers? Use **National Center for Education Statistics College Navigator** to find program completion information of peer institutions offering a same or similar major.

<table>
<thead>
<tr>
<th>PROJECTED DEGREES AWARDED ANNUALLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; Year</td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td>Number of Degrees</td>
</tr>
</tbody>
</table>

Estimates of enrollment and graduation rates are based on survey data from both University of Arizona students enrolling in current EMD courses and Pima Community College Survey data from paramedic completing a paramedic certification over the last year. Estimates of number of degrees awarded are based on data from the National Center for Educational Statistics College Navigator, which reports peer institution degree completion rates ranging from 72% to 50%.

Calculations for the numbers of bachelor’s degrees in Emergency Medical Services awarded:
- Enrolling students = 10, 20, 30, 40, 50
- Assuming a mid-range degree completion rate of 60% - 0, 6, 12, 18, 24
XII. PROGRAM DEVELOPMENT TIMELINE - describe plans and timelines for 1) marketing the major and 2) student recruitment activities.

Post-Degree Approval:
- Engage with local EMS agencies and PCC to increase awareness of program
- Development of marketing material
  - Web page
  - Electronic trade journal program announcement – EMS world, Journal of EMS (JEMS)
- Engage with EMS agencies state wide to increase awareness
  - Arizona DHS engagement
  - Phoenix area EMS agency engagement

Post-Degree Approval: March 2019 forward
- Feb 2019 forward: Hold open EMS degree program advisor office hours
- March 2019: Distribute marketing material
  - Web page
  - Electronic trade journal program announcement – EMS world, Journal of EMS (JEMS)
- March 2019 and forward: Engage with EMS stakeholders to increase awareness
  - Arizona DHS engagement
  - Regional and National conference participation – SWRTC, EMS world, NAEMSP, etc.
XIII. **DIVERSITY AND INCLUSION**—describe how you will recruit diverse students and faculty to this program.

Inclusion of a diverse group of students is critical to the success of this degree program. As outlined in the EMS agenda for 2050 document the creation of an inclusive EMS system across the United States is one of 6 goals for EMS system leaders over the next thirty years. A diverse and inclusive program will promote a diverse EMS system leadership team, which in turn will shape the culture and future of EMS systems across Arizona and the country.

This program will encourage diversity at every level through multiple modalities listed below:

**At the faculty level:** We have a diverse team and will continue to recruit outstanding professionals from a variety of ethnic, religious, and socio-economic backgrounds. Our current faculty group includes male and female faculty and a 50/50 split of male and female course instructors. Although traditionally our faculty group has had an over-representation of Caucasians we strive to be inclusive and have recently recruited African American and Native American faculty/instructors. We will continue to promote a diverse and inclusive faculty and instructor group by reaching out to multiple community stakeholders when recruiting for new positions. These stakeholders include urban and rural communities, under-represented communities, Native-American communities, etc.

**At the student level:** It is critically important to recruit outstanding professionals from a variety of ethnic, religious, and socio-economic backgrounds. Only by inclusion of a diverse group will the future leaders of our EMS systems be able to develop and diverse EMS response able to deliver high quality services to all members of our community. We will promote a diverse and inclusive faculty and instructor group by reaching out to multiple community stakeholders’ when recruiting new students. This includes recruitment in our local communities (communities rich in Hispanic and Native American culture) as well as many other under-represented communities across Arizona. Additionally, for this specific degree program we see two groups that are traditionally excluded from university level education as ideal recruits for this program. First, this program will serve as a pipeline degree program ideally suited to members of the US armed services who through their service become certified as a paramedic and following completion of their service will be able to transition into this degree program. Second, through partnership with community college this program is an ideal way for student completing a 2-year associate’s degree program to transition to a 4-year university degree program.
XIV. ABOR REQUIREMENT: Table-Proposed New Programs

<table>
<thead>
<tr>
<th>Name of Proposed Degree (degree type and major), College/School, Location, Anticipated Catalog Year</th>
<th>Program Fee Required? (Yes or No)</th>
<th>Brief Description Justification and Identified Market Need</th>
<th>Learning Outcomes and Assessment Plan</th>
<th>Projected 3rd Year Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Science in Emergency Medical Services, University of Arizona College of Medicine, Tucson Campus, 2019-2020</td>
<td>No</td>
<td>Description: This degree program is designed to provide paramedics with the scientific background, clinical expertise and leadership skills needed to advance their career and function as a leader in the growing healthcare industry. Justification: The National Highway Traffic Safety Administration (NHTSA) along with the US Department of Health and Human Services recently (HHS) published the 2050 EMS agenda for the future. This report identifies 6 areas of focus for the next 30 years that will allow our EMS systems to improve performance. One of these focus areas is “provider centered” care. The document outlines the importance of the professionalization of EMS providers to both improve career satisfaction and longevity. Through increased availability and participation in 4-year degree programs system leaders hope to improve the level of care available in the field and develop the EMS system leaders that will continue to improve our EMS system over the next 30 years. Market Need:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Learning Outcome # 1</td>
<td>Concepts (Knowledge) Be able to provide exceptional prehospital clinical care for patients with common prehospital medical complaints, for patients exposed to hazardous materials, for patients with critical illness and children with emergency medical conditions.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Competencies (Skills)</td>
<td>Measures</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1) Students will be send a “Student Self Evaluation” incoming survey, mid-program survey and program completion survey.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) As part of the EMD 493A/B Internship the sponsoring EMS agency will be sent a mid and post internship student evaluation. This evaluation will assess the student’s ability to provide clinical care in the prehospital setting for a wide spectrum of patients.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assessment Method and/or Instrument(s)</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>
Multiple data sources were used to evaluate the market need for this program. The United States Bureau of Labor Statistics report that the overall need for EMS professionals will increase by 24% from 2014-2024. This far exceeds that of other career fields. Surveys of EMS and Fire chiefs conducted by our group indicated that a 4-year degree program is needed and indeed vital for the continued success of their agencies. Finally, surveys of paramedic students completing a paramedic-training program indicate that more than 90% of graduates would be interested in pursuing a university degree following completion of their paramedic-training program.

As part of the EMD 493A/B Internship the sponsoring EMS agency will be sent a mid and post internship student evaluation. This evaluation will assess the student’s ability to provide clinical care in the prehospital setting for a wide spectrum of patients.

### Learning Outcome # 2

**Concepts (Knowledge)**
Read and apply new scientific evidence to prehospital patient care

**Competencies (Skills)**
Develop and present an evidence based guideline or scientific research study,

**Measures**

**Assessment Method and/or Instrument(s)**
As part of EMD 498 Capstone the degree program faculty will evaluate each student’s ability to evaluate and integrate scientific evidence into the care of patients in the prehospital setting through course grading system.

### Learning Outcome # 3

**Concepts (Knowledge)**
Demonstrate the ability to lead a team of first responders to provide effective patient care.
<table>
<thead>
<tr>
<th>Competencies (Skills)</th>
<th>- N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measures</td>
<td>- Instructor / EMS agency survey</td>
</tr>
<tr>
<td>Assessment Method and/or Instrument(s)</td>
<td>As part of the required EMD 493 B or D the sponsoring EMS agency will be sent a mid and post-internship student evaluation. This “Site Supervisor Leadership Survey” evaluation will assess the student’s ability to effectively lead an initiative or team.</td>
</tr>
</tbody>
</table>
Appendix A. Minor Requirements.

<table>
<thead>
<tr>
<th>Total units required to complete minor</th>
<th>22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper-division units required</td>
<td>12</td>
</tr>
<tr>
<td>Total transfer units that may apply to minor</td>
<td>7</td>
</tr>
<tr>
<td>List any special requirements to declare/admission to this minor (completion of specific coursework, minimum GPA, interview, application, etc.)</td>
<td>Prior to enrollment in the Minor students must hold a current national or state certification as an EMT</td>
</tr>
</tbody>
</table>
| Minor requirements (list all required coursework including core and electives). Courses listed must include course prefix, number, units, and title. Mark new coursework (New). Include any limits/restrictions needed (house number limit, etc.). Provide email(s)/letter(s) of support from home department head(s) for courses not owned by your department. | Pre-Minor Requirements:  
Certification as EMT or  
EMD 197 – Emergency Medical Technician (4)  
Core Science: min 3 units  
PSIO 202 – Human Anatomy and Physiology II(4)  
PSIO 380 - Fundamentals of Human Physiology(4)  
MCB 181R – Introductory Biology I (3)  
Leadership & Healthcare: min 3 units  
CHS 306 – Interprofessional Care (3)  
CHS 309 – Ethical Issues Common to the Helping Professions (3)  
PHPM 310 - Health Care in the U.S. (3)  
PHPM 407 - Heath Care Economics and Policy (3)  
EHS 375 – Introduction to Environmental and Occupational Health (3)  
EHS 484 – Fundamentals of Industrial and Environmental Health (3)  
PHP 421 – Introduction to Public Health Law and Ethics (3)  
EMS Core Content: min 12 units  
EMD 310 - Core Competencies (3)  
EMD 350 – Advanced EMS systems (3)  
EMD 430 - Wilderness Med (new) (3)  
EMD 440 - Pediatric EMS (new) (3)  
EMD 493 - Internship A or C (3)  
Optional EMD 493 A or C |
| Internship, practicum, applied course requirements (yes/no). If yes, provide description. | |

34
<table>
<thead>
<tr>
<th><strong>Additional requirements (provide description)</strong></th>
<th>EMT certification must be maintained for full duration of the minor.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Any double-dipping restrictions? (Yes/No. If yes, provide description)</strong></td>
<td>Yes, minor coursework may double dip with another minor for Core Science or Electives only.</td>
</tr>
<tr>
<td>Program name, sub-plan name (if applicable), degree, and institution</td>
<td>University of Arizona Proposed: Bachelor of Science in Emergency Medical Services</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Current # of enrolled students</strong></td>
<td><strong>29</strong></td>
</tr>
</tbody>
</table>
| **Major Description - provide a description for the proposed program. Include the purpose, nature, and program highlights. Description must be consistent throughout the proposal documents and match departmental and college websites, handouts, and promotional materials.** | *This degree program is designed to provide paramedics with the scientific background, clinical expertise and leadership skills needed to advance their careers in the growing health-care industry.*

The University of Arizona Bachelor’s Degree Program in Emergency Medical Services provides paramedics with the education and skills necessary to practice at the highest level and become leaders in their field. This program specifically was developed to meet the unique educational needs of the practicing paramedic, with courses available on campus and online. This degree program builds on prior paramedic education by providing the basic science background necessary to adapt to the ever-changing medical field, the advanced clinical knowledge necessary to understand the full range of subspecialty EMS roles, and the leadership skills necessary to succeed in the health-care industry.

The Bachelor of Science in Emergency Medical Services students must have completed a | *The Department of Health Sciences at Northern Arizona University offers an online bachelor degree completion program in Paramedic Care. The B. S. Health Sciences program was developed to provide a convenient and flexible way for students and working professionals to complete their bachelor degree.* | *Creighton University’s Bachelor of Science (BS) program in Emergency Medical Services (BSEMS) combines a broad liberal arts education with comprehensive paramedic instruction. Alongside traditional coursework, you will participate in nearly a year of clinical immersion and direct patient care. You will work with local fire departments and ambulance services, and various clinical units within area hospitals.* |
A paramedic training program and have state or national certification as a paramedic to enroll. Transfer credits from other institutions will be accepted or credit given to those who hold a current state or national paramedic certification. To build on this core knowledge base, students will subsequently complete several core EMS courses in the following core areas: A) foundational science (math, science, and scientific writing, B) advanced EMS systems and patient care (EMS systems, subspecialty EMS care and an EMS capstone project), and C) leadership and health-care systems.

<table>
<thead>
<tr>
<th>Target careers</th>
<th>Community colleges</th>
<th>EMS service providers</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS Service Providers</td>
<td>County health departments</td>
<td>EMS education</td>
</tr>
<tr>
<td>EMS system leaders</td>
<td>Hospitals</td>
<td>Emergency preparedness</td>
</tr>
<tr>
<td>EMS or Fire agency leader</td>
<td>Indian Health Service</td>
<td>Community health training</td>
</tr>
<tr>
<td>Health Care system leader</td>
<td></td>
<td>Public health initiatives</td>
</tr>
<tr>
<td>Public Health leader</td>
<td></td>
<td>Humanitarian assistance</td>
</tr>
<tr>
<td>Disaster Response and preparedness</td>
<td></td>
<td>Injury and illness prevention</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Disaster Response and preparedness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Primary and community-based care</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Emergency department care</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Critical care transportation</td>
</tr>
</tbody>
</table>

| Total units required to complete degree | 120 | 120 | 128 |
| Upper-division units required to complete degree | 42 | 18 | 46 |

| Foundation courses |  |
|---|---|---|
| English composition | Composition Requirements (6 units) | One of following |
| | ENG 101, 102 | ENG 105 (4) |
| | COMP 107, 108, 109H | ENG 101 (3) |
| | | ENG 102 (3) |
| Second language | None | None |
| Math | 3 units of math | Mat 114 or STA 270 (3) |
| M-Strand |  | 5 units |
| General education requirements | 2 courses/ 6 units- Tier I 150 (INDV) (per college exception)  
2 courses/ 6 units-Tier I 160 (TRAD) (per college exception)  
3 units-Tier II Arts  
1 course/ 3 units-Tier II Humanities  
1 course/ 3 units-Tier II Individuals and Societies  
0 courses/0 units-Tier II Natural Sciences (per college exception) | Science with Lab (7 min)  
Aesthetic & Humanistic Inquiry (6)  
Cultural Understanding (6)  
Social and Political Worlds (6 hours) Psych 101 is prerequisite  
Liberal Studies Elective (3)  
Global Diversity Course  
US Ethnic Diversity Course | 21 units  
Critical Issues in Human Inquiry  
Oral Communication  
Philosophical Ideas  
The Christian Tradition |
| Pre-major? (Yes/No. If yes, provide requirements.) Provide email(s)/letter(s) of support from home department head(s) for courses not owned by your department. | Certification as a paramedic | Students must have or currently be pursuing, or be on the waitlist for and associate’s degree program in an allied health discipline through a regionally accredited college. GPA of 2.5 or higher. | EMS 101 Fundamentals of Emergency Medical Services with a grade of “C” of better, or equivalent course and National Registry or state EMT certification are required prior to beginning 300-level and above courses. |
| List any special requirements to declare or gain admission to this major (completion of specific coursework, minimum GPA, interview, application, etc.) | Students must hold a current national or state certification as a Paramedic. A maximum of 4 units may be transferred. | Northern Arizona University (NAU): The College of Health and Human Services offers a Paramedic Care, Bachelor of Science that is fully on line. To be eligible for the Paramedic Care major students must be admitted to, enrolled in, or be graduates from an associate’s degree program at a regionally accredited community college or university in an allied health discipline corresponding with Paramedic Care certification/licensure. | Students pursuing a Pre-Professional School curriculum may receive approval to apply courses from these areas toward the EMS electives. Students should consult with advisors from their school of interest to ensure appropriate completion of entrance requirements. Individualized advice on courses is available from the EMS Education department. |
| Major requirements | | | |
| Minimum # of units required in major (units counting towards major units and major GPA) | 51 | Total Community College Hours (90 max)  
Total NAU Hours (30 hours/18 upper division)  
Total Upper Division (UD) Hours (30 Minimum)  
Total Hours (120 hour minimum NAU Cumultive GPA (2.5 minimum) | 55 |
<table>
<thead>
<tr>
<th>Requirement</th>
<th>Requirement Details</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Minimum # of upper-division units required in the major (upper division units counting towards major GPA)</strong></td>
<td>36</td>
<td>18</td>
</tr>
<tr>
<td><strong>Minimum # of residency units to be completed in the major</strong></td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td><strong>Required supporting coursework (courses that do not count towards major units and major GPA, but are required for the major). Courses listed must include subject code, units, and title. Provide email(s)/letter(s) of support from home department head(s) for courses not owned by your department.</strong></td>
<td>Pre-Major Requirements Certification as a Paramedic</td>
<td>Associated Degree in paramedicine and certificate/licensure as a Paramedic.</td>
</tr>
<tr>
<td>Core Science Selective: Min 11 units:</td>
<td>PSIO 201 Human Anatomy I (4)</td>
<td>Certification as an EMT and 17 credits of supporting course work (basic sciences)</td>
</tr>
<tr>
<td></td>
<td>PSIO 202 Human Anatomy II (4)</td>
<td>Biology 149 or 201 or 201 (3 units)</td>
</tr>
<tr>
<td></td>
<td>PSIO 380 Fundamentals of Human PSIO (3)</td>
<td>Basic Human Anatomy BMS 11 or BMS 311 (4 units)</td>
</tr>
<tr>
<td></td>
<td>MCB 181R Introductory Biology I (3)</td>
<td>Physiology BMS 303 or BIO 449, or EXS 320 (4 units)</td>
</tr>
<tr>
<td></td>
<td>CHEM 151 Gen Chem I (4) or equivalent</td>
<td>Chemistry 105 or CHM 111, or CHM 203 or CHM 205 (3 units)</td>
</tr>
<tr>
<td></td>
<td>CHEM 142 Gen Chem II (4) or equivalent</td>
<td>Physiology 201 or SOC 101 or ANT 113 (3 units)</td>
</tr>
<tr>
<td><strong>Math Selective: min 3 units:</strong></td>
<td>SBS 200 Intro to Biostats (3)</td>
<td>A total of 17 units</td>
</tr>
<tr>
<td></td>
<td>MATH 263- Intro to Stats and Biostats (3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIOS 376 – Biostats (3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CSH 476 – Biostats (3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EPID 309 Intro to Epidemiology (3)</td>
<td></td>
</tr>
<tr>
<td><strong>Pre-Major Requirements Certification as a Paramedic</strong></td>
<td>1) HS 200 - Healthy Lifestyles</td>
<td>1) EMS 101 Fundamentals of Emergency Medical Services</td>
</tr>
<tr>
<td></td>
<td>2) HS 300, HS 320, FW 321, HS 404, HS 410, HS 390W, HS 460C</td>
<td>2) EMS 301-425 (Paramedic certification)</td>
</tr>
<tr>
<td></td>
<td>3) EMS 440-497 (6 units electives)</td>
<td>EMS Education and Planning, EMS management</td>
</tr>
<tr>
<td></td>
<td>4) Critical Care Paramedic</td>
<td>Special topics</td>
</tr>
<tr>
<td></td>
<td>5) Directed Independent Readings</td>
<td>Critical Care Paramedic</td>
</tr>
<tr>
<td></td>
<td>6) Directed Independent Research</td>
<td>Directed Independent Readings</td>
</tr>
</tbody>
</table>
Courses listed must include course prefix, number, units, and title. Mark new coursework (New). Provide email(s)/letter(s) of support from home department head(s) for courses not owned by your department.

<table>
<thead>
<tr>
<th>Communications Selective: min 3 units:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 307 – Business Writing (3)</td>
<td></td>
</tr>
<tr>
<td>ENGL 308 – Technical Writing (3)</td>
<td></td>
</tr>
</tbody>
</table>

**Healthcare Selective: min 6 units**
CHS 306 – Interprofessional Care (3)
CHS 309 – Ethical Issues (3)
PHPM 301 – Health Care in US (3)
PHPM 407 – Health Care Economics (3)
EHS 375 – Health Risk Assessment (3)
EHS 484 – Industrial & Eniro Health (3)
PHO 421 – Intro to Health Law (3)

**Leadership Selective: min 6 units**
AEDV 310 – Transitional Resiliency (3)
LDRV 301 – Leadership Function (3)
LDRV 304 – Human Resources (3)
LDRV 401 – Leadership Diversity (3)
LDRV 387 – Org Leadership
EMD 493 (B or D) (3)

**EMS Selectives: min 9 units**
EMD 410 – Critical Care (new) (3)
EMD 420 – Alt Destination (new) (3)
EMD 440 – Pediatric EMS (new) (3)
EMD 450 – EMS Special Ops (new) (3)

<table>
<thead>
<tr>
<th>Internship, practicum, applied course requirements (Yes/No. If yes, provide description)</th>
<th>Yes, EMD 493 is a required field EMS experience with mentored field care.</th>
<th>No</th>
<th>EMS 440-480 (ES education, EMS management, Special topics, Critical Care)</th>
</tr>
</thead>
</table>

| Senior thesis or senior project required (Yes/No. If yes, provide description) | Yes, Complete 1-3 units of EMS Capstone Project EMD 498 | Yes (Capstone project) | Yes – Field Internship – Capstone (2 units) Provides paramedic students with the opportunity to participate in the delivery of EMS at various field site affiliates. |

<p>| Additional requirements (provide description) | Prepare and submit a scientific publication or develop or revise a prehospital protocol based on new scientific evidence. Course credit of 1-3 units will be determined after submission of project proposal to the degree program advisor | The College of Health and Human Services offers a Paramedic Care, Bachelor of Science that is fully on line. To be eligible for the Paramedic Care major students must be admitted to, enrolled in, or be graduates from an associate’s degree program at a regionally accredited community college or university in an allied health discipline corresponding with | Students participate under the direct supervision of paramedics, performing all paramedic level skills. The primary purpose of field internship is a capstone experience managing the paramedic level decision-making associated with out-of-hospital patient encounters. |</p>
<table>
<thead>
<tr>
<th>Minor (specify if optional or required)</th>
<th>Paramedic Care certification/licensure.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional</td>
<td>Optional</td>
</tr>
</tbody>
</table>

*Note: comparison of additional relevant programs may be requested.*
## METRICS

<table>
<thead>
<tr>
<th>Metric</th>
<th>1st Year 2019-20</th>
<th>2nd Year 2020-21</th>
<th>3rd Year 2021-22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net increase in annual college enrollment UG</td>
<td>30</td>
<td>75</td>
<td>100</td>
</tr>
<tr>
<td>Net increase in college SCH UG</td>
<td>270</td>
<td>675</td>
<td>900</td>
</tr>
<tr>
<td>Net increase in annual college enrollment Grad</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Net increase in college SCH Grad</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Number of enrollments being charged a Program</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Number of Faculty FTE</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

## FUNDING SOURCES

### Continuing Sources

<table>
<thead>
<tr>
<th>Source</th>
<th>1st Year 2019-20</th>
<th>2nd Year 2020-21</th>
<th>3rd Year 2021-22</th>
</tr>
</thead>
<tbody>
<tr>
<td>UG RCM Revenue (net of cost allocation)</td>
<td>74,160</td>
<td>185,400</td>
<td>247,200</td>
</tr>
<tr>
<td>Grad RCM Revenue (net of cost allocation)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Program Fee RCM Revenue (net of cost allocation)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>F and A Revenues (net of cost allocations)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>UA Online Revenues</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Distance Learning Revenues</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Reallocation from existing College funds (attach description)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other Items (attach description)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total Continuing</strong></td>
<td><strong>$ 74,160</strong></td>
<td><strong>$ 185,400</strong></td>
<td><strong>$ 247,200</strong></td>
</tr>
</tbody>
</table>

### One-time Sources

<table>
<thead>
<tr>
<th>Source</th>
<th>1st Year 2019-20</th>
<th>2nd Year 2020-21</th>
<th>3rd Year 2021-22</th>
</tr>
</thead>
<tbody>
<tr>
<td>College fund balances</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Institutional Strategic Investment</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gift Funding</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other Items (attach description)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total One-time</strong></td>
<td><strong>$ -</strong></td>
<td><strong>$ -</strong></td>
<td><strong>$ -</strong></td>
</tr>
<tr>
<td><strong>TOTAL SOURCES</strong></td>
<td><strong>$ 74,160</strong></td>
<td><strong>$ 185,400</strong></td>
<td><strong>$ 247,200</strong></td>
</tr>
</tbody>
</table>

## EXPENDITURE ITEMS

### Continuing Expenditures

<table>
<thead>
<tr>
<th>Category</th>
<th>1st Year 2019-20</th>
<th>2nd Year 2020-21</th>
<th>3rd Year 2021-22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td>29,664</td>
<td>74,160</td>
<td>98,880</td>
</tr>
<tr>
<td>Other Personnel</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Employee Related Expense</td>
<td>7,416</td>
<td>18,540</td>
<td>24,720</td>
</tr>
<tr>
<td>Graduate Assistantships</td>
<td>6,000</td>
<td>6,000</td>
<td>6,000</td>
</tr>
<tr>
<td>Operations (materials, supplies, phones, etc.)</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
</tr>
<tr>
<td>Additional Space Cost</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Items (attach description)</td>
<td>29,664</td>
<td>74,160</td>
<td>98,880</td>
</tr>
<tr>
<td><strong>Total Continuing</strong></td>
<td><strong>$ 73,744</strong></td>
<td><strong>$ 173,860</strong></td>
<td><strong>$ 229,480</strong></td>
</tr>
</tbody>
</table>

### One-time Expenditures

<table>
<thead>
<tr>
<th>Category</th>
<th>1st Year 2019-20</th>
<th>2nd Year 2020-21</th>
<th>3rd Year 2021-22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction or Renovation</td>
<td>5,000</td>
<td>5,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Start-up Equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Replace Equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Library Resources</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Items (attach description)</td>
<td>5,000</td>
<td>5,000</td>
<td>5,000</td>
</tr>
<tr>
<td><strong>Total One-time</strong></td>
<td><strong>$ 5,000</strong></td>
<td><strong>$ 5,000</strong></td>
<td><strong>$ 5,000</strong></td>
</tr>
<tr>
<td><strong>TOTAL EXPENDITURES</strong></td>
<td><strong>$ 78,744</strong></td>
<td><strong>$ 178,860</strong></td>
<td><strong>$ 234,480</strong></td>
</tr>
</tbody>
</table>

## Net Projected Fiscal Effect

<table>
<thead>
<tr>
<th>Category</th>
<th>1st Year 2019-20</th>
<th>2nd Year 2020-21</th>
<th>3rd Year 2021-22</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net Projected Fiscal Effect</strong></td>
<td><strong>$ (4,584)</strong></td>
<td><strong>$ 6,540</strong></td>
<td><strong>$ 12,720</strong></td>
</tr>
</tbody>
</table>
Appendix 4: EMS Degree Proposal – Brief Faculty Vita

Joshua B. Gaither, MD, FACEP, FAEMS

Chronology of Education

Sep. 1996 – May 2000 B.S. with Honors in Microbiology & Chemistry
Northern Arizona University
Flagstaff, Arizona

July 2000 – May 2004 M.D.
The University of Arizona
College of Medicine
Tucson, Arizona

July 2004 – June 2008 Emergency Medicine Residency
Yale University
Yale New Haven Hospital
New Haven, Connecticut

July 2007 – June 2008 Chief Resident, Emergency Medicine
Yale University
Yale New Haven Hospital
New Haven, Connecticut

July 2008 – June 2009 Fellowship, Prehospital and Disaster Medicine
University of Colorado
Denver Health & Hospital Authority
Denver Paramedic Division
Denver, Colorado

Board Certifications & Licensure

Feb. 2007 – American Board of Medical Examiners (ABME)

Nov. 2009 – Diplomate, American Board of Emergency Medicine (ABEM)
Emergency Medicine (Specialty)

Oct. 2013 – Fellow, American College of Emergency Physicians (FACEP)
Emergency Medicine (Specialty)
 Chronology of Employment

June 1998 - Aug. 2002 (Seasonal)  Emergency Medical Technician (EMT)  
Wilderness Guide  
Canyon Dreams Backcountry Guides and Outfitters  
Grand Canyon National Park, Arizona

July 2004 – June 2008  Emergency Medicine Resident  
Yale New Haven Hospital  
Yale University  
New Haven, Connecticut

July 2007 – June 2008  Emergency Medicine Chief Resident,  
Yale New Haven Hospital  
Yale University  
New Haven, Connecticut

July 2008 – June 2009  Prehospital and Disaster Medicine Fellow  
Denver Health & Hospital Authority  
Denver Paramedic Division  
University of Colorado  
Denver, Colorado

July 2008 – June 2009  Instructor of Emergency Medicine  
Department of Surgery, Division of Emergency Medicine  
University of Colorado  
Denver Health & Hospital Authority  
Denver, Colorado

July 2009 – June 2015  Assistant Professor of Emergency Medicine  
Department of Emergency Medicine  
The University of Arizona College of Medicine  
Tucson, Arizona

July 2015 -  Associate Professor of Emergency Medicine  
Department of Emergency Medicine  
The University of Arizona College of Medicine  
Tucson, Arizona

Relevant Associated Positions:

Local/State

2009 –  
Associate Medical Director  
University Campus Base Hospital  
University of Arizona Medical Center  
Tucson, Arizona
Appendix 3: EMS Degree Proposal – Brief Faculty Vita

2011 –
Member
Trauma & EMS Performance Improvement Committee
Arizona Department of Health Services

2013 –
Member
EMS Protocol & Medical Devices Committee
Arizona Department of Health Services
Phoenix, Arizona

2014 –
Medical Director
Pima County JTED Training Program
Tucson, Arizona

2014 –
Medical Director
JTED EMT course
Tucson, Arizona

2014 –
Associate Medical Director
EMS Education, Outreach, and Subspecialties
The University of Arizona Health Network
Tucson, Arizona

2015 –
Member
EMS on the Boarder Conference Planning Committee
Southwest Regional Trauma Conference Planning Committee

2015 –
Member
AzPOST Narcan Educational Curriculum Development Committee
Arizona Department of Health Services
Phoenix, Arizona

2016 –
Advisory Board Member
Pima County Joint Technical Education (JTED) Programs
Emergency Medical Training Program

2013 – 2016
Steering Committee Member
Implementation of EMS Evidence-Based Guidelines
National Highway Traffic Safety Administration
Washington, DC

2011 –
EMS & Disaster Curriculum Director
The University of Arizona
University Campus, Emergency Medicine Residency
Tucson, Arizona

2012 –
EMS Fellowship Director
Department of Emergency Medicine
The University of Arizona College of Medicine
Tucson, Arizona
Publications/Creative Activity (Published or Accepted)

Over 75 publications in Emergency Medical Services. Please see full CV for list of publications.

Educational Program Development / Instruction:

2014 -
EMD 350
Advanced Emergency Medical Services
Curriculum Co-Director and Instructor
University of Arizona; Advanced EMS

2015 -
EMS Fellowship Director
University of Arizona College of Medicine
Department of Emergency Medicine
EMS Fellowship

2016 -
EMD 493A
EMS Internship
Curriculum Co-Director and Instructor
University of Arizona; EMS Internship

2016 -
EMD 493B
EMS Leadership Internship
Curriculum Co-Director and Instructor
University of Arizona; EMS Leadership

2016 -
Distance EMS Continuing Education Program
Co-Director & Instructor
University of Arizona
CV: Kuwimana Moses Mhayamaguru

EDUCATION & TRAINING

2016 – 2017          EMS Medical Directions Fellowship
Tucson, AZ            University of Arizona

2013 – 2016          EMERGENCY MEDICINE RESIDENCY
Tucson, AZ            University of Arizona – University Campus Program

2004                  EMERGENCY MEDICAL TECHNICIAN – Basic [Challenged Paramedic Board Exam as RN thereafter]
St. Petersburg, FL    St. Petersburg College

2002 – 2003           BACHELOR OF SCIENCE IN NURSING, Accelerated Curriculum for MDs
Cavite, Philippines   Adventist University of the Philippines

2001 – 2002           MEDICAL POST GRADUATE INTERSHIP [PGY-1/Transitional Year]
Pasay, Philippines    Manila Adventist Medical Center

1997 – 2001           DOCTOR OF MEDICINE
Manila, Philippines   Manila Central University FDT Medical Foundation

1996 – 1997           GRADUATE WORK TOWARDS A MASTER OF SCIENCE IN CHEMISTRY EDUCATION
Nueva Ecija, Philippines Central Luzon State University

1993 – 1996           BACHELOR OF SCIENCE IN BIOLOGY
Cavite, Philippines   Adventist University of the Philippines [formerly Philippine Union College]

CERTIFICATIONS AND LICENSURES

2017 – Diplomate, American Board of Emergency Medicine
2016 – Present        MD License, AZ Lic. #: 52239
2016 – Present        MD License, FL Lic. #: ME127947
2016 – Present        Hospital Credentials for Ultrasound
                       [E-FAST, Aorta, Cardiac, Pelvic, Renal, Soft Tissue and Procedures]
2003 – Present        Registered Nurse, FL Lic. #: RN 9208429
2006 – Present        EMT-Paramedic, FL Lic. #: PMD 511049
2015 – Present        AHLS Provider [Advanced Hazmat Life Support]
2013 – Present        ATLS Provider [Advanced Trauma Life Support]
2013 – Present        APLS Provider [Advanced Pediatric Life Support]
2010 – Present        NRP Provider [Neonatal Resuscitation]
2017 – Present        STOP! The Bleed Instructor
2016 – Present        AZ DEA #: FM6194954
2016 – Present        FL DEA #: FM5979945
2006 – Present        ACLS Instructor [Advanced Cardiac Life Support]
2004 – Present        CEN [Certified Emergency Nurse]
2004 – Present        BLS Instructor [Basic Life Support]
2004 – Present        DOT Air Medical Crew Core Course
2004 – Present        PALS Provider [Pediatric Advanced Life Support]
2004 – Present        TNCC Provider [Trauma Nurse Core Course]
2004 – Present        ENPC Provider [Emergency Nurse Pediatric Course]
2004 – 2007           ITLS Provider [International Trauma Life Support]
Appendix 3: EMS Degree Proposal – Brief Faculty Vita

P
rogram]
2008 – Present  CFRN  [Certified Flight Registered Nurse]
2003 – 2006  ACLS Provider  [Advanced Cardiac Life Support]
2008 – Present  ABLS Provider  [Advanced Burn Life Support]
1993 – 2004  BLS Provider  [Basic Life Support]

PROFESSIONAL EXPERIENCE

2017 – Present  CLINICAL ASSISTANT PROFESSOR | EMERGENCY & EMS PHYSICIAN
Tucson, AZ  The University of Arizona, Department of Emergency Medicine | Banner University Medical Center

2016 – Present  MEDICAL DIRECTOR
Tucson-Phoenix, AZ  Integrated Community Solutions to Acts of Violence [ICSAVE]

2016 – 2017  EMERGENCY PHYSICIAN
Tucson, AZ  EMCare | Locums

2016 – 2017  CLINICAL INSTRUCTOR & EMERGENCY PHYSICIAN
Tucson, AZ  The University of Arizona, Department of Emergency Medicine | Banner University Medical Center

2013 – Present  CCATT PHYSICIAN [44Y3] | PROVIDER
943RD AEROSPACE MEDICINE SQUADRON, 943RD RESCUE GROUP, Davis-Monthan AFB
Tucson, AZ  United States Air Force Reserve, Captain

2008 – 2013  PRECEPTOR/INSTRUCTOR – SPECIAL OPERATIONS COMBAT MEDIC [SOCM] Course
Tampa, FL  Tampa General Hospital – Level 1 Trauma Center
Clinical training sight for the Joint Special Operations Medical Training Center [JSMTC], Ft. Bragg, NC

2006 - 2013  EMERGENCY DEPARTMENT NURSE – Trauma & Resuscitation Nurse [TRN], Clinical Ladder Level 4
Tampa, FL  Tampa General Hospital – Level 1 Trauma Center

2003 – 2006  EMERGENCY DEPARTMENT NURSE – Clinical Nurse III
Clearwater, FL  Morton Plant Mease Health Care [Morton Plant Hospital ER-1] – Cardiac & Stroke Center

2002  UNIVERSITY PHYSICIAN
Cavite, Philippines  Adventist University of the Philippines Health Services

2002  NURSING BOARD EXAM REVIEW INSTRUCTOR
Pasay, Philippines  Advent Review Center

RESEARCH AND PUBLICATIONS
FULL LENGTH PUBLICATIONS


PEER REVIEWED ABSTRACTS


MANUSCRIPTS IN PROGRESS

- **Mhayamaguru, K.M.,** Sakles, J. and Mosier, J. “The Pre-Intubation, Intubation and Difficult Intubation Checklist” an Aviation inspired intubation checklist
- Derr, C., Hachadorian, M, Merrit, R., **Mhayamaguru, K.M.**. "The Effect of Head Rotation on the Relative Vascular Anatomy of the Neck: Implications for Central Venous Access” (Forthcoming)

VOLUNTERR EXPERIENCE

2001, 2002 **SURGICAL-MEDICAL-DENTAL OUTREACH MISSION**

**Greater Seattle Filipino-American SDA Church medical mission to the Philippines**

AWARDS and HONORS

2016 **The Golden “Binky” Award** – University of Arizona EM Class 2016

2015 **Hospital Physician of the Month** – University of Arizona Medical Center

2014 **Unit Doctor of the Month** – University of Arizona Medical Center D2N

2013 **Unit Doctor of the Month** – University of Arizona Medical Center D3N

2012 **Nominated Clinical Excellence Award** – Tampa General Hospital

2011 **Nominated Clinical Excellence Award** – Tampa General Hospital

2009 **Emergency Nurse of the Year** – Tampa General Hospital

2009 **Outstanding Preceptor** – University of South Florida CON

2009 **Nominated Division Nurse of the Year** – Tampa General Hospital

2001 **Most Outstanding Clerk Award** – Manila Central University

2001 **Top 5 Graduating Senior** – Manila Central University COM

1998 **Medical School Scholarship** – Manila Central University COM

1996 **Dean’s List, Graduate School** – Central Luzon State University
Appendix 3: EMS Degree Proposal – Brief Faculty Vita

2009  **Nominated Clinical Excellence Award** – Tampa General Hospital

1996  **Magna Cum Laude** – Adventist University of Philippines

1995  **Most Outstanding International Student in the Philippines**

*NATIONAL AWARD*

**CONFERENCES/SCHOLARLY ACTIVITIES**

- May 2017  school shootings
- May 2017  how to stay alive modern day ems
- January 2017  **Rescue Task Force Overview** – BUMC Base Hospital Annual EMS recertification day
- January 2017  bleeding and anticoagulants – BUMC Base hospital
- June 2016  **Academic Program Review Committee Member** – University of Arizona DEM
- March 2016  **Emergency Department Process Improvement Committee Member** – BUMC T
- February 2016  “EMS Financing” – EMS college lecture
- December 2015  “Situational Awareness – Surviving Sepsis” – A CQI case for EM Conference
- October 2015  “Skills Every Emergency Physician Should Be Familiar With” – EM Conference
- August 2015  “Toxicology Jeopardy” – Toxicology Rotation Q&A Session
- February 2015  “Mommy My Urine Looks Funny” [Autoimmune Hemolytic Anemia (AIHA)] – EM Conference
- February 2015  “Rx for Family and Friends Pearls” – EM Conference
- January 2015  ‘Orthopedic Injuries & Immobilization” – UA Medical Student EM Orientation Lecture Series
- December 2014  “Tramadol” – Drug Toxicology Review - Arizona Poison Control Center, Toxicology Rotation
- December 2014  “Pediatric Seizures” – EM Conference
- July 2014  “Squirrels Get Sick Tool” [Care for the “Frequent Flier” Patients] – EM Conference
- December 2013  “Toxicology” – UA Medical Student EM Orientation Lecture Series
- December 2013  “Orthopedic Injuries & Immobilization” – UA Medical Student EM Orientation Lecture Series
- August 2013  “Approaching the New Born in the Emergency Department ” – EM Conference
- January 2013  “Emergency Nursing” – USF Morsani College of Medicine Explorers Program 2013
- July 2011  “Vasopressor use in Different Types of Shocks” – CME lecture Tampa General Hospital
- 2009 – 2010  **Team Leader:** Supplies & Equipment Overhaul Project – Tampa General Hospital E.D.

**PROFESSIONAL MEMBERSHIP**

- 2017 to Present  Special Operations Medical Association [SOMA]
- 2015 to Present  National Association of EMS Physicians [NAEMSP]
- 2013 to Present  American College of Emergency Physicians [ACEP]
- 2013 to Present  Scientific Academy of Emergency Physicians [SAEM]
- 2012 to Present  Emergency Medicine Residents’ Association [EMRA]
- 2008 to Present  Air & Surface Transport Nurses Association [ASTNA]
- 2004 to Present  Emergency Nurses Association [ENA]

**LANGUAGES:**  Fluent in English, Kinyarwanda, Swahili, and Filipino. Proficient in Spanish.
PCC Survey Results

PCC Student Survey 2018

Would you be interested in this program if it was available today?

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
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<tr>
<td>1</td>
<td>Yes</td>
<td>95.59%</td>
<td>65</td>
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<td>2</td>
<td>No</td>
<td>4.41%</td>
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</tr>
<tr>
<td>Total</td>
<td></td>
<td>100%</td>
<td>68</td>
</tr>
</tbody>
</table>

Would you prefer a 100% on-line degree program or a hybrid course with EMS skills in person?

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I would prefer 100% on-line</td>
<td>60.29%</td>
<td>41</td>
</tr>
<tr>
<td>2</td>
<td>I would prefer hybrid with some on-line and EMS skills in person</td>
<td>39.71%</td>
<td>27</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100%</td>
<td>68</td>
</tr>
</tbody>
</table>

What percentage of the following degree program material would you like to see in each category? (Total 100%)

<table>
<thead>
<tr>
<th>#</th>
<th>Field</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std Deviation</th>
<th>Variance</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Advanced EMS knowledge and skills (HAZMAT, Critical Care, Peds, etc.)</td>
<td>0.00</td>
<td>100.00</td>
<td>33.33</td>
<td>20.83</td>
<td>433.82</td>
<td>69</td>
</tr>
<tr>
<td>2</td>
<td>Administration (business communication, budgets, etc.)</td>
<td>0.00</td>
<td>50.00</td>
<td>12.54</td>
<td>11.44</td>
<td>130.89</td>
<td>69</td>
</tr>
<tr>
<td>3</td>
<td>Research (bio-statistics, ethics, etc.)</td>
<td>0.00</td>
<td>25.00</td>
<td>11.23</td>
<td>6.56</td>
<td>43.05</td>
<td>69</td>
</tr>
<tr>
<td>4</td>
<td>Internships (Credit for on the job experience as a paramedic or EMS agency leader)</td>
<td>0.00</td>
<td>70.00</td>
<td>19.49</td>
<td>14.25</td>
<td>203.00</td>
<td>69</td>
</tr>
<tr>
<td>5</td>
<td>Leadership (management and leadership education)</td>
<td>0.00</td>
<td>50.00</td>
<td>19.20</td>
<td>10.59</td>
<td>112.05</td>
<td>69</td>
</tr>
</tbody>
</table>

If you were to enroll in this degree program (even if you answered NO above) why would you do so:
<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>To get promoted in my current job</td>
<td>30.43%</td>
<td>21</td>
</tr>
<tr>
<td>2</td>
<td>To become a better paramedic</td>
<td>36.23%</td>
<td>25</td>
</tr>
<tr>
<td>3</td>
<td>To improve the chances of gaining employment outside of the EMS field</td>
<td>23.19%</td>
<td>16</td>
</tr>
<tr>
<td>4</td>
<td>Other</td>
<td>10.14%</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100%</td>
<td>69</td>
</tr>
</tbody>
</table>

If you chose "Other" please explain

If you chose "Other" please explain

Promotion within my organization and other exposures to job related profession.

N/A

To improve the current options in the region.

I didn’t chose other, but I’d like to add the option of becoming a better paramedic

Did not choose other but would like to add that I would like to teach and mentor in the future and this would be a great resource.

Improve my chances of promotion and ability to work within EMS for other agencies. Improve the professionalism of the EMS career

To prepare myself for a higher level education degree or prep for PA school.

It would be an incredible opportunity if it allowed you to knock out your 400 level science classes with lab requirements and took care of the other prerequisites for PA/medical school. Otherwise I believe it would be a complete waste of time as NAU offers the same program online but does not offer the 400 level science classes required for a masters or doctorate. Most emt ride alongs come through our station trying to go to PA school and needing clinical hours in a prehospital setting. EVERY one of them that I talk to agree that if there was a paramedic bachelors that would prepare you to apply for higher education, they would have done that instead of what they majored in.

I chose “to be a better paramedic”, but I would also like to take this program because it would be nice to have a Bachelor’s in Paramedicine that I can work towards in Tucson. I believe NAU is currently the only University in AZ that has a transfer program for students with an Associates in Paramedicine for Emergency Management. I have thought about doing NAU’s program, but if UofA had one too that wasn’t just about management, I would definitely attend!

I am very interested in paramedic to nursing bridges. The bridge programs Ive been looking at only award an associates so using my current paramedic background to get a bachelors would allow me to enter into a nurse practitioner program sooner.

All of the above

For MD school.

The U.S. Department of Labor estimates that there will be a dramatic increase in the demand for paramedics over the next 10 years. Why, given demand, would you take this degree program?
The U.S. Department of Labor estimates that there will be a dramatic increase in the demand for paramedics over the next 10 years. Why, given demand, would you take this degree program?

To shine above others

To promote within my fire department, in turn that gives me the opportunity to better provide for my family. The demand for paramedics can’t be a reason I don’t go after further goals I’ve had since day one. As a captain you can also still use your paramedic skills daily.

More demand more job opportunity.

Further my education and knowledge as an active paramedic to provide better service to the patients in my District (GRFD) and my employer. Knowledge is the foundation to everything, including skills (in my opinion).

To improve the process.

Future opportunities for other employment avenues after retirement from public safety

I would take this program because I believe there will be an increased diversification and utilization of paramedics across many specialized fields in the near future. I believe a focused undergraduate degree would position me to be a leader and on the forefront of these specialties.

In hopes that medical directors will allow us to actually save lives. Give us more advanced skills and medicine to actually make a difference. Why not be a community like Medic One is Seattle.

Just to continue my education

More skills. Exposed to different environments

I already have a Bachelors from the UofA in psychology with a minor in pre law. I would do this program if it was online to add another bachelors to my resume.

Leadership/Mentorship in the EMS field. Increase professionalism.

To better my knowledge and understanding as a paramedic.

To become a better paramedic, gain a degree for promotion, and to have something to fall back on or do part time

To provide the leadership in bringing new people into the field

As I stated previously, due to the future demand I would like to be able to teach and provide those educational purposes for those that want to pursue this career.

Professionalism and commitment to excellence

To better my skills and for future promotion in my Job. Also to show my kids that no matter your age when you put your heart into something you can obtain great things.

Job opportunities outside of the fire department.

To be more marketable in the field

Most fire department/districts require a bachelor degree to promote to battalion chief or above, with the rank of paramedic being a route to captain, then battalion chief, this program would be a great opportunity for everyone. Also, in southern Arizona the majority of paramedics attend Northern Arizona University for their program, or Grand Canyon University for an emergency management degree, this would keep students local. The demand will continue to be there as agencies push to move the paramedic career to a professional level.

To prepare for an administrative role, for example an EMS Coordinator or EMS Division Chief

As the need for paramedics will rise, so will the need for managers to properly lead the paramedics.

To provide more opportunities outside of just field paramedicine
No only because I have a BS in health sciences.

Taking this degree program is going to allow myself to not only become a more well rounded paramedic but to also be in a position of influence to a highly demand position. This will give us the opportunity to educate and further fill the need for paramedics within the community.

I would be interested in this program to build on the foundation I have built while obtaining my associates.

Promotion and industry demand BS/BA degrees

I would take it to have the option to promote as an officer at my fire department and I would like the option to consider higher education.

EMS is an area of study that I consider fascinating

For the prospect of advancing the career to something easier on the body - teaching, administration, or hospital settings.

I would take it because not only would it help me succeed in my future career endeavors, but I feel I would be more confident and proficient in my paramedic and leadership skills.

Promotional opportunities and career advancements

To supplement my educational background and enhance my professional resume.

To advance my education in the healthcare field.

Promotional opportunities

To make myself more attractive for promotions and become a better professional.

I would take this program because it will help me in the long run. Most public service jobs now require you to have some sort of degree to promote through the ranks. This degree would help me reach those goals.

For promotional opportunities. To further my knowledge and expertise in the field.

I would take the program to advance my skills to meet the needs of the patient. Higher demand for prehospital intervention also means there will be the potential for sicker, more critical patients. Having an advanced knowledge base would allow me to help make time sensitive interventions sooner to improve patient outcome.

To advance my career

For potential employment opportunities outside of field EMS work.

Eventually my body or my mind will have had enough of EMS and this program would provide a route towards administration/corporate or another career field.

I would like to become a better paramedic. I would like to think that with this program I would be fit to train others. The demand for paramedic trainers will also increase.

To separate myself from other paramedics and demonstrate a greater knowledge, expertise, and commitment to my industry.

Professional development.

Any other comments, suggestions and feedback is greatly appreciated.

Any other comments, suggestions and feedback is greatly appreciated.

do this for U of A fans everywhere. Dont make me take online ASU course.

I wish this opportunity was available to me both before and after I entered into the fire service. I think this is a FANTASTIC opportunity and step in the right direction to producing better public servants. I think this degree program should have been available years ago, but happy to see it is in the works!
Why not also offer a professional cert or graduate level course for those with bachelors.

Thank you for the opportunity to give my input and hopefully this will give some support for the the possible program.

This would be a very popular degree that I feel many fellow EMS workers would love to take.

I am currently working as a paramedic and transferring to the U of A for a pre-med degree and am considering my options on what to study for a bachelors degree

I have started a similar program at NAU, would I be able to transfer some of those degree specific classes over to UofA?

Much needed program/degree!

Would LOVE this opportunity, gives local/in-state medics to take the next step for education and promotion.

If you end up creating a program that allows people to go directly from their bachelors to PA or medical school, it will bring candidates from both in and out of state guaranteed. Great revenue for you, great hands on for students that otherwise enter medical and PA school without ever touching a patient beforehand.

Online would be the best way to work this program, since most paramedics work rotating schedules that prohibit taking standard college courses.

Love this idea and I think it would be a huge success!

It would be real cool if I could go to U of A for a paramedic to nursing bridge program instead of Mesa Community College.

Always wanted to be a Wildcat!

The only local degree program that I am aware of for paramedics is through NAU. Since I am local and from Tucson, I would love to have a degree, and a program, from the U of A. If I needed help with any step of the process I could go on campus and ask questions in person rather than through email or on the phone. I think having a degree program for EMS providers through the U of A would be a huge benefit for everyone in Tucson. Starting a paramedic to RN bridge program would also be something to consider. The only one in Arizona is offered through Maricopa community colleges. I know many people who have had to drive to Phoenix for a whole year to attend that program. Having a similar program at the U of A would bring many applicants and potential new students to your college.

I think this is a great program to start and would also like to see a paramedic to nursing bridge in the future.

Very interested and curious what the time frame would be for this to happen.

I would love for this program to be offered at UA. I am currently looking for the same program at other institutions. This opportunity would improve knowledge and expertise of local paramedics in the southern Arizona region.

This would be super beneficial
September 13, 2018

Dear Drs. Gaither and Keim,

I recently reviewed the proposed undergraduate degree program in Emergency Medical Services. The proposed degree program would allow students with a current certification as a paramedic to enroll in a Bachelors of Science in Emergency Medical Services program and individuals who have a current certification as an EMT to enroll in a Minor in Emergency Medical Services program. As part of this program student may elect to complete PSIO 201/202 or PSIO 380 to fulfill a graduation requirement.

I understand that for the first three years of this program Dr. Gaither estimates that 30 students per year would enroll in the bachelors degree program and 15 would be likely to take PSIO 380 in either an online or traditional course format. Additionally, 25-30 students per year are likely to enroll in the minor degree program and need to take PSIO 201/202 or 380; however, the vast majority of these students are expected to have already taken PSIO 303 as part of their primary degree course work. Because of this, Dr. Gaither estimates that only an additional 10 students per year would be required to take PSIO 380 to complete the minor degree requirements. In total it is estimated that the addition of PSIO 380 as a requirement in the proposed degree program will increases enrollment by 25 students per year.

At this time the Department of Physiology is able to accommodate this number of students without significant disruption to department or faculty operations. I would like to provide my support for this degree program as currently presented to me.

Sincerely,

Nicholas A Delamere, PhD.
Professor and Head
Department of Physiology
September 25, 2018

Joshua B. Gaither, MD  
EMS Fellowship Director  
Associate Professor of Emergency Medicine  
College of Medicine, University of Arizona

Dear Drs. Gaither & Keim

I recently reviewed the proposed undergraduate degree program in Emergency Medical Services. The proposed degree program would allow students with a current certification as a paramedic to enroll in a Bachelors of Science in Emergency Medical Services program. As part of this bachelors degree program, student may elect to complete CHS 306 or 309 as one way to fulfill a graduation requirement.

I understand that for the first three years of this program Dr. Gaither estimates that 15-30 students per year would enroll in the bachelors degree program and take either CHS 306 or 309. In total, it is estimated that the addition of CHS 306 and 309 as a requirement in the proposed degree program will increases enrollment in the combined courses by 15-30 students per year. At this time, the School of Sociology is able to accommodate this number of students without significant disruption to department or faculty operations. I would like to provide my support for this degree program as currently presented to me.

Sincerely,

Terrence D. Hill

Terrence D. Hill, Ph.D.
Associate Professor  
Care, Health and Society Program Director  
The University of Arizona  
School of Sociology  
Social Sciences Building, Room 427  
1145 E. South Campus Drive  
Tucson, AZ 85721  
E-mail: tdhill@email.arizona.edu  
Phone: 520-621-3804  
Fax: 520-621-9875
October 18, 2019

Dear Drs. Gaither and Keim:

I recently reviewed the proposed undergraduate degree program in Emergency Medical Services with Dr. Gaither. The proposed degree program would allow students with a current certification as a paramedic to enroll in a Bachelor of Science in Emergency Medical Services program. As part of this bachelor’s degree program student may elect to complete EHS 375 or 484 to fulfill a graduation requirement.

I understand that for the first three years of this program Dr. Gaither estimates that 15 - 30 students per year would enroll in the bachelor’s degree program and need to take one of our courses. At this time the Department Community, Environment and Policy is able to accommodate this number of students without significant disruption to department or faculty operations. I would like to provide my support for this degree program as currently presented to me.

Sincerely,

Douglas Taren, PhD
Associate Dean for Academic Affairs
Professor of Public Health
Dear Drs. Gaither, Keim & Cairns

I recently reviewed the proposed undergraduate degree program in Emergency Medical Services with Dr. Gaither. The proposed degree program would allow students with a current certification as a paramedic to enroll in a Bachelors of Science in Emergency Medical Services program and individuals who have a current certification as an EMT to enroll in a Minor in Emergency Medical Services program. As part of this bachelors degree program student may elect to complete MCB 181 to fulfill a graduation requirement.

I understand that for the first three years of this program Dr. Gaither estimates that 15 students per year would enroll in the bachelors degree program and take MCB 181 in either an online or traditional course format. Additionally, 75 students per year are likely to enroll in the minor degree program; however, the vast majority of these students are expected to have already taken MCB 181 as part of their primary degree program. Because of this Dr. Gaither estimates that only an additional 10 students per year would be required to take MCB 181 to complete the minor degree requirements. In total, it is estimated that the addition of MCB 181 as a requirement in the proposed degree program will increases enrollment in MCB 181 by 25 students per year.

At this time, the Department of Cellular and Molecular Biology is able to accommodate this number of students without significant disruption to department or faculty operations. I would like to provide my support for this degree program as currently presented to me.

Sincerely,

Joyce Schroeder, PhD
Professor and Head, Molecular and Cellular Biology
Director, Metastatic Breast Cancer Initiative
Professor, BIOS Institute
Professor, Cancer Biology - GIDP
Professor, Genetics - GIDP
December 3, 2018

Sam Keim, M.D.
Department Head
Department of Emergency Medicine
College of Medicine
University of Arizona

Dear Dr. Keim

I recently reviewed the proposed undergraduate degree program in Emergency Medical Services with Dr. Gaither. The proposed degree program would allow students with a current certification as a paramedic to enroll in a Bachelor’s of Science in Emergency Medical Services program. As part of this bachelor’s degree program student may elect to complete CHEM 141-144, which is recommended, or Chem 151-152 to fulfill a graduation requirement.

I understand that for the first three years of this program Dr. Gaither estimates that 15 -30 students per year would enroll in the bachelor’s degree program and need to take one of our courses. At this time the Department Chemistry and Biochemistry (CBC) is able to accommodate this number of students without significant disruption to department or faculty operations. I would like to provide my support for this degree program as currently presented to me.

Sincerely,

Roger L. Miesfeld
CBC Department Head
University Distinguished Professor
Josh,

I think the courses should stay in the program. I don’t think you need a separate letter. All of our 300 level courses are open to any student. We will just need to be sure that 407 course is open to students in the EMS major as for now it is restricted for public health majors.

Doug

Douglas Taren, PhD
Associate Dean for Academic Affairs
Professor of Public Health
Director, Western Region Public Health Training Center
Mel and Enid Zuckerman College of Public Health
University of Arizona
1295 N. Martin Ave, PO Box 245163
Tucson, AZ 85724
Phone: 520-626-8375

From: Joshua Gaither <JGaither@aemrc.arizona.edu>
Date: Monday, October 22, 2018 at 2:05 PM
To: Doug Taren <taren@email.arizona.edu>
Cc: Kristina Waters <kwaters@aemrc.arizona.edu>
Subject: Re: EMS degree program

Doug,

Thanks again for the letter of support from the EHS courses. I just wanted to close the loop on the other courses from the College of Public Health (BIOS 376, PHPM 301 and 407, EPID 309). Should I take those course out of the degree program or would a letter of support use
come from another faculty member?

Thx, josh g

On Oct 10, 2018, at 9:39 PM, Taren, Douglas L - (taren) <taren@email.arizona.edu> wrote:

Hi Josh,

Attached is the letter of support.

Best,

Doug

Douglas Taren, PhD
Associate Dean for Academic Affairs
Professor of Public Health
Mel and Enid Zuckerman College of Public Health
Director, Western Region Public Health Training Center
University of Arizona
520-626-8375

From: Joshua Gaither <JGaither@aemrc.arizona.edu>  
Date: Monday, October 1, 2018 at 1:21 PM  
To: Doug Taren <taren@email.arizona.edu>  
Cc: Sam Keim <Sam@aemrc.arizona.edu>  
Subject: EMS degree program
Doug,

Thanks for taking the time to meet with me this past Friday! I wanted to follow-up on our conversation with two things:

1) Please see the attached revised draft of our degree program requirements (as we discussed this is still a work in progress but getting closer). Please let me know if I have made any errors or left anything off.

2) I have taken the liberty of attaching a draft letter of support formatted so that one letter will cover all of the College of Public Health courses. Please let me know if you want individual department letters and I can send those drafts also.

Thanks again for your time and support. Please let me know if there is anything else that comes up as you discuss this with your faculty group. I'm happy to chat with anyone who wants more info or make changes as needed.

Thx, josh g

Joshua B. Gaither, MD
EMS Fellowship Director
Associate Professor of Emergency Medicine
College of Medicine, University of Arizona

<EMS Support Letter.pdf>
October 22, 2018

Dear Drs. Gaither & Keim,

I recently reviewed the proposed undergraduate degree program in Emergency Medical Services. The proposed degree program would allow students with a current certification as a paramedic to enroll in a Bachelors of Science in Emergency Medical Services program. As part of this bachelors degree program student may elect to complete SBS 200 as one way to fulfill a graduation requirement.

I understand that for the first three years of this program Dr. Gaither estimates that 15 -30 students per year would enroll in the bachelors degree program and take SBS 200. In total it is estimated that the addition of SBS 200 as a requirement in the proposed degree program will increases enrollment by 15-30 students per year.

At this time the Department of Social and Behavioral Science is able to accommodate this number of students without significant disruption to department or faculty operations. I would like to provide my support for this degree program as currently presented to me.

Sincerely,

[Signature]

Amy C. Kimme Hea, PhD
Associate Dean for Academic Affairs and Student Success
College of Social and Behavioral Sciences
Memorandum

To: Joshua B. Gaither, MD, EMS Fellowship Director

Date: September 17, 2018

Subject: B.S. Emergency Medical Services Proposal

Dear Drs. Gaither and Keim:

Thank you for meeting with our faculty Dr. Michael Marks (Transitional Resilience), Romi Wittman (Organizational Leadership) and me to discuss your proposed undergraduate degree program in Emergency Medical Services. This program would allow students with a current certification as a paramedic to enroll in a Bachelor of Science degree in Emergency Medical Services program and individuals who have a current certification as an EMT to enroll in a Minor in Emergency Medical Services program. I understand that The College of Medicine would like to include several courses from UA South in the proposed Emergency Medical Services degree program. As part of these bachelors and minor degree programs student may elect to complete one of the following courses to fulfill the degree requirements: AEDV 310, LDRV 302, 401 or 404. All those UA South courses are offered in Arizona Online and Distance as well.

I understand that for the first three years of this program Dr. Gaither estimates that 10-30 students per year would enroll in the bachelors degree program and take one of the above courses in either an online or traditional course format. Additionally, 15-25 students per year are likely to enroll in the minor degree program and need to take LDRV 302, 401 or 404. In total it is estimated that the addition of the above courses to the undergraduate program in EMS would add 25-55 students per year to your program.

At this time UA South is able to accommodate this number of students without significant disruption to department or faculty operations. Your program is responding to a great need in the EMS community and I provide my strongest support for this degree program as currently presented to me.

Sincerely,

[Signature]

Dr. Barbara W. Citera
Associate Dean
The University of Arizona South
520.458.8278 ext. 2123
bwcitera@email.arizona.edu
UG proposal addendum
Response to comments

1. Comment: CHEM 151 and 152 inconsistencies.

- Response: Our goal is to allow our students to take either of the following sequences:
  - CHEM 141 (3 units), CHEM 142 (3 units) with option CHEM 143/4 (1 unit each)
  - CHEM 151 (4 units), CHEM 152 (4 units)

- Corrections to proposal: we would like to make the following corrections:
  - Correct the Title of these courses in the Major Requirements section. The correct Chemistry courses for the degree are CHEM 151 General Chemistry I (4 units) and CHEM 152 General Chemistry II (4 units)
  - Please make the following changes to the Current Courses table in section III from CHEM 141 to CHEM 151 and CHEM 142 to 152 with the following table descriptions:

<table>
<thead>
<tr>
<th>Course prefix</th>
<th>Units</th>
<th>Title</th>
<th>Course Description</th>
<th>Pre-requisites</th>
<th>Modes of delivery</th>
<th>Typically offered</th>
<th>Dept signed party</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM</td>
<td>4</td>
<td>General Chemistry I</td>
<td>Integrated lecture-lab course designed to develop a basic understanding of the central principles of chemistry that are useful to explain and predict the properties of chemical substances based on their atomic and molecular structure. Additionally, students will be introduced to modern laboratory techniques and participate in experimental activities that promote the development of basic and advanced science-process skills. The course is designed for students who require a strong foundation in general chemistry, such as science and engineering majors, pre-medical and pre-pharmacy students.</td>
<td>PPL 50+ or SAT I MSS 590+ or ACT Math 24+ or one course from Math 112, 113, 120R, 122B, 125, 129, or 223. Test scores expire after 2 years. Must not have taken CHEM 105A/106A, or CHEM 141/143, CHEM 161/163</td>
<td>In person</td>
<td>Yes</td>
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CHEM 152

4

General Chemistry II

Continuation of CHEM 151, Integrated lecture-lab course designed to develop a basic understanding of the central principles of chemistry that are useful to explain and predict the properties of chemical substances based on their atomic and molecular structure. Additionally, students will be introduced to modern laboratory techniques and participate in experimental activities that promote the development of basic and advanced science-process skills. The course is designed for students who require a strong foundation in general chemistry, such as science and engineering majors, pre-medical and pre-pharmacy students.

CHEM 151 or CHEM 141/143 and one of the following: Concurrent enrollment in UA Math 112 or PPL 50+ or SAT I MSS 590+ or ACT MATH 24+ or one courses from MATH 112, 113, 120R, 122B, 125, 129, or 223. Test scores expire after 2 years.

In person

Fa, Sp, Su

Yes

2. Comment: AEDV 310 course description.

- Response: Please correct the course description to the following:
  This course blends current research on resiliency, learning, and leadership in an integrative manner to foster individual leadership. Focus is on the: physical, psychological, and social systems of resiliency; psychological principles applied to learning and instructional design; and analysis of readings addressing practical and theoretical leadership principles.

3. Comment: Ensuring EMS providers are able to deal with the psychological needs of patients, their crews and themselves when dealing with personal tragedy of their patients...

- Response: Both perspectives are important and should be addressed:
o Provider resiliency is covered in detail in the course AEDV 310 as well as in individual lectures contained in EMD 350 and EMD 310.
o Provider compassion and burnout are covered in the course EMD 310 where crew resource management and critical incident stress management are covered.

4. Comment: EMD 440 has the title Advanced Prehospital Pediatric Care, but the description is for patients who are victims of sexual or physical assault.

- Response: This was an error…. The description is incorrect. Please change the description in the New Courses table to: This course will provide an overview of the initial assessment and emergency management of children according to the pediatric assessment triangle. Key to this course will be the recognition of critically ill children in a pre-hospital setting in order to place them into appropriate standing order sets. Course topics will include airway obstruction, croup, bronchiolitis, pneumonia, asthma, cardiac arrest, dysrhythmias, shock, sepsis, altered mental status, traumatic brain injury, seizures, neonatal resuscitation, and special needs/technology dependent children. (a course request has not been initiated for this course)

5. M-strand requirements, Math 263, and calculus requirement

- Response 1: We will differ to guidance from the office of academic affairs on inclusion of MAT 114 as a degree requirement and are happy to list this course specifically or as a general M-strand requirement that our academic advisors will direct students into.
- Response 2: We are very excited to have the opportunity to include Math 263 as an option through which our students might complete their statistics and biostatistics requirement. We would like to add this to the program proposal.
- Response 3: We had not intended to require completion of calculus. It was included only as a suggestion in the 4-year plan where we inserted that course as an example.
Response:

Thank you for this valuable feedback. We have addressed each comment specifically below. Given that feedback was obtained from paramedics practicing in several different states and there are comments throughout regarding the differences in paramedic care from state to state we will address that issue here:

Several of the comments focused on differences in how paramedics practice or provide patient care from state to state. It is important to note that there are national standards for all EMS provider education and scope of practice set by the National Highway Transpiration and Safety Administration (NHTSA), National Associate of State EMS Officials (NASEMSO) and the National Registry of EMTs (NREMT). Although each state may add to the national standards, the national standards form a common base on which all providers function. This degree program will teach to the national standards (national standard critical care paramedic, national standard toxicology-med, national standard community paramedic, etc.). By teaching to these standards this degree program will both be more generalizable and avoid the nuanced operational differences of how a paramedic is certified or practices from state.

Feedback:

Pros of the Program: (Discussed with leaders in paramedicine, nurse paramedic, and EMT in N.C.) North Carolina has a progressive regulatory body governing paramedicine, and the roles paramedics can fill, such as ED staff, community medics, Cath lab medics, critical care transport, and EMS directors. In NC, paramedics diagnose patients in order to treat their patients.

This program fills a great need to bridge the divide between certified &/or Associate Degree Paramedics who want to obtain their bachelor’s degree and further advance the field of paramedicine.

The concept of giving credit for the professional experience and holding a current state certification or national registry is enticing.

Program is very thorough in what it covers and what is needed to meet the 2050 goals stated in the proposal. Paramedicine is where nursing was prior to the push for standards in care across the board, national licensure exams and bachelors prepared nurses. This program is a stepping stone to meeting those needs and even shortage of healthcare providers in general. Paramedics could
be used in tele health, home health, in a multitude of areas and further education can be of benefit for these needs.

The program covers EMS management and a higher level in clinical care by providing education in CCPC preparedness, wilderness medicine, and upper management courses.

**Response:**

*Thank you for these kind comments. It is our goal to provide our students with an educational experience that will serve them well over the next 30 years as health care continues to evolve.*

**Feedback:**

**Cons of the Program** (Discussed with paramedics who practice in California). California medics have a limited scope of practice and are highly regulated. This should be considered when reviewing the responses from paramedics in California.

The paramedics in California have a significantly different view on the program. They feel that the program would create a barrier to entry for the profession where there is a medic shortage. Paramedics in California DO NOT diagnose. Because transport ETAs are normally short, and hand off is given to physicians and nurses, the additional knowledge isn’t necessary. The program is costly to a workforce with limited incomes and would be costly to retrain medics who are working, and new students.

**Response:**

*Please see the introductory comment above.*

Importantly, this degree program is not designed to provide primary paramedic training and as such should not serve as a barrier to entry for those students who want to enter the field as a paramedic. Rather this program is designed to allow those practicing paramedics who want to seek an advanced degree, an opportunity to do so. We believe that by giving paramedics transfer credit for their primary paramedic training and building this bachelor’s degree program on the foundation of a state or national paramedic certification we will give students more career opportunities and potentially draw more individuals into a career as a paramedic. Specifically, our survey data suggest that several students in our EMD courses would have preferred to complete a paramedic training program after high school and work as a paramedic before entering their undergraduate degree program. This degree program would provide them with a pathway that would enable students to become a paramedic, work in a dynamic health care environment and if they desire, return to complete a bachelor’s degree program which builds on their paramedic training.

**Feedback:**

The program may cause lower functioning, easily managed workforce to become self-aware and self-governed and draw the focus of the paramedics from (in their view) more important political, economic and legal issues to systems. Paramedics may become equally or more qualified to replace educated MD, RN and administrative persons currently governing EMS.

**Response:**

*Yes, we agree… paramedics should be leading their own organizations.*
Feedback:
Patients with needs other than ED treatment might be identified, and alternative care provided. This may reduce income and dependence upon transporting agencies, agencies receiving pass through fees and hospital ED. The medics feel that a higher education in EMS will benefit those working in specific fire agencies.

Response:
Yes, this type of training is included in our degree program.

Feedback:
Specific questions/comments regarding curriculum (UGC Subcommittee members).

1. How will transfer students be handled? Usually, transfer students come in with some general education courses from a community college- ideally the full Arizona General Education Curriculum (AGEC). The proposed BS in EMS includes 15 units of general education and the subcommittee wonders if you are expecting students to transfer with EMT/paramedic courses from the community college, but not general education courses? What does that mean for the total number of years of post-secondary education that students in the BS in EMS need to take?

Response:
Thank you for this question. Indeed, we anticipate that the vast majority of our students will be transfer students. We have worked with the transfer credit office to develop two tracts which we believe will be most commonly utilized by our students (see below). Additionally, we have worked with Pima Community College to ensure that student course work taken at PCC (a commonly pathway for our students) will transfer appropriately.

• 1 + 3 tract - This group of students will transfer in with 30 paramedic credits (no AGEC) and complete all degree requirements at the University of Arizona.

• 2+2 tract - This group of students will transfer to the University of Arizona with an associate’s degree which includes an AGEC.

Feedback:
2. The proposal notes that there are at least 5 new courses that will require an instructor (plus internship, leadership, and capstone credit). How does the unit plan to staff those courses and what will offer them mean for other curricula in the unit? If the expected number of majors is 15-30 per year, is this justifiable in terms of allocation of resources?

Response:
There are several new courses included in this degree program. We have not previously offered these courses and, without the degree program, we do not believe there will be enough student demand to cover course expenses. There are several “costs” to running EMS courses which will be covered thorough a variety of methods outlined below:

• Staffing: our department has identified a faculty member to lead each of the proposed new courses. Our faculty model utilizes clinical faculty as course instructors. This model allows us a large amount of flexibility as we can move faculty effort from the clinical to educational space with as little as 6 month’s notice.
Course content: we will utilize two types of course content... national standardized course content (available in commonly used text books) and content currently taught to emergency medicine residents that will be modified for a paramedic audience. Through utilization of this material course start up work will be reduced.

Course cost: All of our courses require a minimum of 10 students to cover course expenses (faculty time, admin support, etc.). We have worked with the Dean of the College of Medicine to ensure that we have sufficient funding to offer each new course for 2 years with a class size less than 10 prior to implementing our minimum enrollment cap.

Feedback:

3. Provide additional information on specific ways the BS in EMS degree will differ from how current leaders are being educated and the ramifications of that approach to leadership. Please elaborate on the following statement from the proposal “…future healthcare system leaders who are able to promote a civil minded approach to the management and oversight of critical healthcare infrastructure.”

Response:

Graduates from our program will primarily move into leadership roles within EMS and Fire agencies. Currently individuals who function in assistant chief or chief roles in these agencies have bachelor’s degrees in leadership or healthcare systems. As highlighted above, currently available training pathways prepare these individuals to be leaders but does not provide them with the advanced medical training and scientific background necessary to incorporate advances in medicine into EMS patient care. Because of this, nurses and other healthcare providers are commonly hired by EMS agencies to ensure EMS care is both appropriate and up to date. This degree program will provide graduates with the advanced basic science and medical knowledge required to be both an agency leader and lead changes the delivery of medical care within their agency.

A smaller group of our graduates will go on to be leaders in the broader healthcare system. Currently, in part due to paramedic training at the associates degree level only, there are few paramedics in healthcare leadership rolls. This degree program will provide the advanced medical training (basic science, clinical patient care, and communication skills) necessary for our graduates to function as a leader in a broader group of health care fields.

Finally, EMS responders serve in a unique environment where EMTs and paramedics must take care of any patient in any situation and are frequently exposed to both the best and worst of human behavior across all segments of society. This experience provides insight into culture and the importance of diversity commonly overlook by healthcare providers who serve their whole careers in a clinic. By providing a specific pathway for individuals with this experience (serving a diverse patient population) we believe that we can help ensure that these individuals are included in the next generation of health care leaders.

Comments from Paramedics in NC:
For all of the comments below it appears that reviewers may not have had access to full course or degree descriptions. A very large number of the comments make request for things that are already part of this degree program or are addressed in course descriptions or the degree program proposal. We have briefly addressed easy comment below as best we can.

Feedback:

A&P from Associates Degree programs should be able to transfer credits in the program if content is comparable.

Response:

Yes, we agree.

Feedback:

Some of the courses are redundant and could be blended with other courses:

Response:

Yes, there is some redundancy in course listing. This is due to the formatting of the degree program which allows students to choose one or two courses from a list of 4-5 to complete a degree requirement.

Feedback:

CHS 306_Paramedics of any educational background should already have this very well covered and can be integrated into another course.

Response:

With all due respect, we disagree with this statement and feel that this course is of value to our students. Should a student feel that this course is not of interest to them they have multiple other courses that they can take in its place.

Feedback:

EMD 350: Should be an in-depth review of what they already know, especially your more experienced students.

This is the purpose of EMD 350... please see course description below:

This course will provide a broad overview of medical care provided by EMS services, the science behind EMS operations, and the legal framework under which out-of-hospital medical care is provided. Course topics will include the history and foundations of EMS, EMS systems, state and regional EMS systems, trauma systems, emergency departments and EMS, medical oversight and accountability, administration/management/operations, system financing, communications, emergency medical dispatch, medical record documentation and EMS information systems, ambulance ground transport, inter-facility and specialty care transfer, air medical transport, EMS for children, rural EMS, disaster response, emergency medical care at mass gatherings, response to terrorist incidents and weapons of mass destruction, operational EMS, EMS and public health, research, EMS educational programs, EMS providers and system
Feedback:

PHPM 310 and PHPM 407 could be combined into one course, or at least be in conjunction with one another.

Response:

*This course is not offered through the department of emergency medicine and we do not have the authority to change the course or combine it with other courses.*

Feedback:

One thing that was strongly suggested is to have a BS Paramedicine with a concentration track with the following options:

Response:

*We have elected not to provide a distinction or other tract as part of this program as a leader in an EMS system will need to be well rounded and have experience with all areas of EMS patient care.*

Feedback options followed from:

One thing that was strongly suggested is to have a BS Paramedicine with a concentration track with the following options:

* Clinical - Critical Care, ECMO (since this is being started in the field for cardiac arrest in some areas) Pediatrics. & Neonatal

Response: *This is offered as part of this degree program and discussed in the proposal*

* Community Health Paramedicine/ Advanced Practice Paramedic/ Alternative Destination - focus: 3 hospitals in the healthcare system where I am located are currently designing programs for post discharge patients - (one of the hospitals already has a program in place but cannot find enough bachelor prepared paramedics to fill the needs).

Response: *This is offered as part of this degree program and discussed in the proposal*

* Education - with a focus on training (i.e.: FTEP), sim lab training and scenario design, on-going con-ed to meet national registry or other certification requirements

Response: *This is offered as part of this degree program and discussed in the proposal*

* Healthcare Administration Management / Leadership - with focus in hospital based, City/County Government based, or private sector-based systems. For example, in NC, the 911 system is county government based and not associated with the fire service - there is a lot of politics and dealings with county commissioners and such. Most of high-level critical care transport agencies are hospital based such as Duke Life Flight, Carolina Air Care, Baptist Air Care, & MedCenter Air.

Response: *This is offered as part of this degree program and discussed in the proposal*

* Operations: This would be your Hazmat, Tactical Medic, Rescue, Wilderness and so on.
Response: This is offered as part of this degree program and discussed in the proposal

* An intense pharmacology course to the program would be beneficial, as would an advanced hemodynamics monitoring and ventilation management course.

Response: This is not offered as part of this degree program but is included in the critical care paramedic course which is offered.

* An intensive psychology course with critical incident situation debriefing and education on coping with PTSD.

Response: This is offered as part of this degree program and discussed in the proposal

**Leadership:**
- ED Team Leader/ Supervisor (2011-2013)
- ER Charge Nurse 2009 - present
- Magnet Committee Champion
- Stroke Certification Team Member