MS in Medical Engineering

Under Review | Fall 2026

Proposal Information

Workflow Status

In Progress

Graduate Council Agenda Preparation, Graduate College Curriculum expand ▲

Waiting for Approval | Graduate Council Agenda Preparation

Amanda Morales-Calderon
Lisa Anderson
Amy Glasscock
Sophia Mcgovern
Kayla Durazo

Proposal to Establish a New Program

Requested Term & Year (The first term for which applications will be accepted and students admitted.)

Fall 2026

This proposal can also be viewed at:
https://asu.kuali.co/cm/#/programs/view/67b78b99a9649e431f13b84e

General Information

Select Program Level and Type
Graduate master's degree

General Program Information

College/School/Institute
Ira A. Fulton Schools of Engineering (CES)

Department/Division/School
Harrington Bioengineering Program (CBIOENG)

Name of Program
MS in - Medical Engineering

Program

Medical Engineering

Degree Type

Master of Science (MS)

Proposing Faculty Group
N/A

Responsible Faculty Member or Director
Heather Clark

Campus or Location options
Downtown Phoenix
Tempe

Add a Different Campus or Location
No

Are you requesting an online offering?
No

Program Description/Justification

The MS in Medical Engineering will cultivate engineers with a specialized focus on healthcare technology by fostering a holistic approach to problem-solving via project-based learning in medical contexts. Students, many of whom will be concurrently pursuing an MD, will complete applied projects in interdisciplinary teams including both engineers and health professionals, combining foundational knowledge in biomedical sciences with core engineering principles and data science, and cutting-edge technologies like artificial intelligence. Two of the courses offer brief immersive experiences, one in industry (ReMIX) and one in a clinical setting. Aside from those immersive experiences, most of the course content will be taught on campus. Additionally, there are two iCourses that have been designed to give students flexibility to participate in summer research opportunities or complete a clerkship at an off-campus location during the summer terms during which they are offered.

Graduates will be well-versed in assessing, analyzing, and integrating complex information, enabling them to craft precise solutions for healthcare challenges through the utilization of data and the application of cutting-edge technologies. Graduates' abilities to critically evaluate evidence, consider diverse perspectives, and anticipate challenges will uniquely position them to make informed decisions that optimize the deployment of resources and prioritize preventive measures in healthcare settings. Graduates' proficiency in critical thinking and interdisciplinary collaboration will equip them to navigate the intricate landscape of data- and technology-driven healthcare projects. This approach will result in streamlined development processes, cost-effective implementation of solutions, and an overall improvement in the functionality and efficiency of healthcare systems. The impact of these engineers will extend beyond individual project contributions to shape the landscape of healthcare advancements, promoting quality and accessibility in the field for the benefit of patients and the healthcare community at large.

Graduates will not only excel in technical expertise but will also embody the values championed by ASU's design aspirations, actively contributing to the advancement of health care with a focus on societal impact, inclusivity and excellence. For example, they will be instilled with a holistic understanding of the societal and ethical dimensions of data and technology in health care. They will be trained to approach challenges with a forward-thinking mindset, ensuring that the application of technologies contributes positively to healthcare accessibility and quality. Students will have the opportunity to perform needs assessment firsthand through brief immersive experiences in industry or the clinic. Furthermore, this program will emphasize cooperation and engagement with diverse perspectives, mirroring ASU's commitment to inclusivity. Via collaborative projects throughout the program, students will be encouraged to work across disciplines, fostering an environment where the intersection of technology and healthcare is explored through a variety of lenses.

Program Need

The target audience for this program includes both medical students and engineering students seeking to drive innovation in diagnostic tools, therapeutic strategies, and healthcare delivery systems. Upon graduation from the MS program, most engineering students would likely target roles in industry related to bioengineering or biomedical engineering. It is expected that the medical students will also complete their MD degrees and will pursue clinical practice with an eye towards transformative technologies. The U. S. Bureau of Labor Statistics reports the 2022 median pay for "bioengineers" and "biomedical engineers," the closest categories to this degree, as $99,550/year, with 19,700 jobs in 2022 and a projected growth rate of 5% per year (faster than average) from 2022 to 2032. Furthermore, in 2023, US News & World Report ranked biomedical engineers as #1 in best engineering jobs, based in part on the data provided by the U.S. Bureau of Labor Statistics. According to oNET Online, bioengineers and biomedical engineers are projected to have a "bright outlook" in Arizona. A 2023 report by the Common Sense Institute Arizona ("The Economic Impact of Arizona's Health Care Sector") shows that not only is health care the largest sector in Arizona by employment, it has created "a natural market for healthcare research and biologic manufacturing." Indeed, a Flinn Foundation study reported that the "non-hospital biosciences" sector in Arizona employs 34,000 people, with a growth rate four times that of the entire USA over the last 20 years (Horowitz, Mitch, and Helwig, Ryan, "Biosciences in Arizona 2022 Performance Review", TEConomy Partners, LLC, April 20, 2022). Though several other programs at ASU may touch on similar topics, such as biomedical devices, digital health, and artificial intelligence, this program is unique in that it is designed to bring two cohorts together to offer a multidisciplinary approach to tackle complex challenges in healthcare. There are a few other universities that offer engineering-based medical education, but this is a relatively new area, with the first program offered in 2019. The proposed program has been designed from the ground up to enable students to gain an understanding of medicine and physiology through an engineering lens, ultimately producing pioneers in digital healthcare.

Specialized Accreditation

N/A

State Authorization and Professional Licensure:

State Authorization and Professional Licensure:

Does this degree program include learning placement opportunities (clinical, externship, internship, research, student teaching, etc.)?
Y

Will this degree program be offered via distance education (whole or in-part)?
Y

Will in-person instruction be occurring in any jurisdiction, other than the State of Arizona?
N

Does this degree program potentially lead to professional licensure or certification (attorney, nurse, physician, teacher, etc.) for the student?
N

Collaborating Units

Are two or more academic units collaborating on this program?
Yes

Collaborating Units
School of Biological & Health Systems Engineering (CBIOHEAENG)
School of Medicine and Advanced Medical Engineering (CMED)

Nature of Collaboration

This degree is offered in collaboration with the ASU School of Medicine and Advanced Medical Engineering (SOMME). Faculty and staff from Engineering and SOMME have worked together to co-create this program and will continue to collaboratively deliver the program content. Many of the faculty have joint appointments in both schools. The School of Engineering will be primarily responsible for program administration. Two degree tracks are offered--one for engineering students and another for medical students. This degree will be conferred by the School of Engineering.

Is this an officially recognized joint program?
No

Collaboration and Impact

List other academic units or programs that might be impacted by the proposed program and describe the potential impact (e.g., how the implementation of this program might affect student headcount/enrollment, student recruitment, faculty participation, course content, etc. in other programs) and how the programs might complement each other. If there are no comparable programs, describe why the program is unique at ASU.
Given the unique nature of the proposed degree, we do not anticipate substantial impacts on other academic programs at ASU. The proposed medical engineering program complements existing programs by focusing on the practical application of engineering principles and artificial intelligence to address clinical challenges. This new program emphasizes a multidisciplinary approach that bridges the gap between engineering and clinical medicine.

Statements of support have been requested from the following academic units on 9/9/2025:

Global Futures, College of
New College of Interdisciplinary Arts and Sciences
Nursing and Health Innovation, Edson College of
School of Technology for Public Health
The College of Liberal Arts and Sciences

Received statements of support:
Health Solutions, College of
Herberger Institute for Design and the Arts
Thunderbird School of Global Management

Attach a PDF copy of the letter of collaboration and impact from each Dean, or Dean's designee at the Assistant or Associate Dean level, from impacted programs and units consulted.
- School of Medicine and Advanced Medical Engineering Collaboration.pdf
- FROM__ Thunderbird School of Global Management_MS in Medical Engineering – Statement of Support Request.pdf
- FROM_College of Health Solutions_ MS in Medical Engineering – Statement of Support Request.pdf
- FROM_HIDA_ MS in Medical Engineering – Statement of Support Request.pdf
- TO_School of Technology for Public Health - MS in Medical Engineering – Statement of Support Request.pdf

Course Development

Will a new course subject be required for this program?
No

Will new courses be established?
Yes

List the new courses required for the proposed program.
BME 502 - Fundamentals of AI for Medical Applications (2) | **Under Review**
BME 503 - Applications in Medical Engineering I (4) | **Under Review**
BME 504 - Applications in Medical Engineering II (4) | **Under Review**
BME 519 - Medical Engineering Design Principles (1) | **Under Review**
BME 515 - Research in a Medically Integrated Experience: ReMIX (2) | **Under Review**
BME 528 - Capstone Research I: Design (4) | **Under Review**
BME 529 - Capstone Research II: Implementation (4) | **Under Review**

BME 511 - Foundations in Medicine for Engineers I (1) | **Under Review**
BME 512 - Foundations in Medicine for Engineers II (1) | **Under Review**
BME 513 - Foundations in Medicine for Engineers III (1) | **Under Review**
BME 514 - Foundations in Medicine for Engineers IV (1) | **Under Review**
BME 516 - Clinical Immersion for Engineers (1) | **Under Review**
BME 501 - Applied Signals and Systems for the Clinic (2) | **Under Review**
BME 518 - Medical Engineering Design Methodology (2) | **Under Review**

Graduate Degree Curriculum

Allow 400-level courses?
No

Minimum Credits Required for the Program
30

Curriculum Requirement Option 1
30 credit hours including the required capstone course (BME 528) - engineering student option

Add another option?
Yes

Curriculum Requirement Option 2
30 credit hours including the required capstone course (BME 528) - medical student option

Add another option?
No

Curriculum Requirement Option 1

30 credit hours including the required capstone course (BME 528) - engineering student option

Min credits required for this option
30

Primary Requirement (Culminating experience)
Capstone Course

Additional Requirement(s)

Required number of committee members

1

Curriculum option course requirements

Required Core

15
Total Credits

- Complete 15 credits from the following courses:
  - BME501 - Applied Signals and Systems for the Clinic (2)
  - BME502 - Fundamentals of AI for Medical Applications (2)
  - BME503 - Applications in Medical Engineering I (4)
  - BME504 - Applications in Medical Engineering II (4)
  - BME515 - Research in a Medically Integrated Experience: ReMIX (2)
  - BME519 - Medical Engineering Design Principles (1)

Track for Engineering Students

5
Total Credits

- Complete 5 credits from the following courses:
  - BME511 - Foundations in Medicine for Engineers I (1)
  - BME512 - Foundations in Medicine for Engineers II (1)
  - BME513 - Foundations in Medicine for Engineers III (1)
  - BME514 - Foundations in Medicine for Engineers IV (1)
  - BME516 - Clinical Immersion for Engineers (1)

Other Requirements

6
Total Credits

- Complete all of the following
  - Complete 6 credits from the following courses:
    - BME528 - Capstone Research I: Design (4)
    - BME591 - Seminar (1 - 12)
  - Engineering students in this track will take 2 credit hours of BME 591 Seminar.

Culminating Experience

4
Total Credits

- Complete 4 credits from the following courses:
  - BME529 - Capstone Research II: Implementation (4)

Grand Total Credits: 30

Additional Curriculum Information

The capstone research project will integrate knowledge from various disciplines to design, develop, and evaluate a digital healthcare solution addressing a real-world healthcare problem, allowing students to demonstrate their ability to apply theoretical concepts to practical applications while considering ethical, regulatory, clinical, and commercial considerations. Capstone Research 1 will include the research and design phase of the process. Capstone Research 2 will include the implementation and evaluation phases of the capstone research process. Students will apply their knowledge throughout the full lifecycle of digital healthcare systems, from data acquisition in hospital settings to deployment in clinical trials and bedside care, emphasizing multidisciplinary collaboration between engineers and medical professionals for impactful innovation.

Curriculum Requirement Option 2

	Min credits required for this option
30 credit hours including the required capstone course (BME 528) - medical student option	30

Primary Requirement (Culminating experience)	**Additional Requirement(s)**
Capstone Course	

Required number of committee members

1

Curriculum option course requirements

Required Core

15
Total Credits

- Complete 15 credits from the following courses:
  - BME501 - Applied Signals and Systems for the Clinic (2)
  - BME502 - Fundamentals of AI for Medical Applications (2)
  - BME503 - Applications in Medical Engineering I (4)
  - BME504 - Applications in Medical Engineering II (4)
  - BME515 - Research in a Medically Integrated Experience: ReMIX (2)
  - BME519 - Medical Engineering Design Principles (1)

Track for Medical Students

2
Total Credits

- Complete 2 credits from the following courses:
  - BME518 - Medical Engineering Design Methodology (2)

Other Requirements

9
Total Credits

- Complete all of the following
  - Complete 9 credits from the following courses:
    - BME528 - Capstone Research I: Design (4)
    - BME591 - Seminar (1 - 12)
  - Medical students in this track will take 5 credit hours of BME 591 Seminar.

Culminating Experience

4
Total Credits

- Complete 4 credits from the following courses:
  - BME529 - Capstone Research II: Implementation (4)

Grand Total Credits: 30

Additional Curriculum Information

The capstone research project will integrate knowledge from various disciplines to design, develop, and evaluate a digital healthcare solution addressing a real-world healthcare problem, allowing students to demonstrate their ability to apply theoretical concepts to practical applications while considering ethical, regulatory, clinical, and commercial considerations. Capstone Research 1 will include the research and design phase of the process. Capstone Research 2 will include the implementation and evaluation phases of the capstone research process. Students will apply their knowledge throughout

the full lifecycle of digital healthcare systems, from data acquisition in hospital settings to deployment in clinical trials and bedside care, emphasizing multidisciplinary collaboration between engineers and medical professionals for impactful innovation.

Projected Enrollment

Enrollment Headcounts

	Number of Students Majoring
1st Year	36
2nd Year (Yr 1 continuing + new entering)	72
3rd Year (Yr 1 & 2 continuing + new entering)	108
4th Year (Yrs 1, 2, 3 continuing + new entering)	144
5th Year (Yrs 1, 2, 3, 4 continuing + new entering)	150

Additional Enrollment Information
Note that all medical students are expected to enroll in this MS program, and we also anticipate additional engineering (non-medical) students to enroll as well.

Estimated Timeframe to Complete Program

What is the minimum timeframe that this program can be completed?
1-2 years

If necessary, please provide additional information.
A typical engineering student will complete this program in 2 years, while a medical student will complete the curriculum alongside their medical education in 4 years.

Resources (Faculty, Staff and Others)

Current Faculty

Name	Title	Highest Degree Obtained	Area of Specialization or Expertise	Estimated Level of Involvement
Heather Clark	School Director and Professor	PhD	Biomedical engineering	High
Scott Beeman	Assistant Professor	PhD	Biomedical engineering	High
Asif Salekin	Assistant Professor	PhD	Artificial Intelligence	High

Name	Title	Highest Degree Obtained	Area of Specialization or Expertise	Estimated Level of Involvement
Chris Plaisier	Associate Professor	PhD	Systems Biology	Medium
Bradley Greger	Associate Professor	PhD	Biomedical Engineering	Medium
Vikram Kodibagkar	Professor	PhD	Biomedical Engineering	Low
Brent Vernon	Associate Professor	PhD	Biomedical Engineering	Low

New Faculty
The need for additional faculty is not anticipated.

Is your college in the process of reviewing the new faculty? Or has new faculty already been approved?
N/A

Administration of the Program
Heather Clark, the Director and Olin Endowed Professor in the School of Biological and Health Systems Engineering, as well as the Senior Associate Dean for Engineering Integration within the School of Medicine and Medical Engineering, will be the faculty lead for this program. The Graduate Program Chair for the MS in Medical Engineering will be appointed by the FSE Dean. A Graduate Program Committee will be formed that will include faculty representatives from the Fulton Schools of Engineering, and the ASU School of Medicine and Advanced Medical Engineering (SOMME). Admission decisions will be coordinated with the SOMME Associate Dean for Admissions. Current staff from SBHSE will support this program.

Required Resources
No new resources are required.

Resource Acquisition
N/A

Graduate Program Admission Requirements

The below sections are for initial admission criteria setup for new programs. Once the program is approved, this section will display the admission text as it appears in the academic catalog/degree search.

Applicants must fulfill the requirements of both the Graduate College and the **[name of college]**. Applicants are eligible to apply to the program if they have earned a bachelor's or master's degree in **[subject area]** or related field; from a regionally accredited institution. Applicants must have a minimum cumulative GPA of 3.00 (scale is 4.00 = "A") in the last 60 hours of a student's first bachelor's degree program, or applicants must have a minimum cumulative GPA of 3.00 (scale is 4.00 = "A") in an applicable master's degree program.

Name of College

Ira A. Fulton Schools of Engineering (CES)

Subject Area(s)

Engineering, Medicine

Is the minimum required cumulative GPA in the last 60 hours of bachelor's degree higher than the standard minimum of 3.00?

No

Is the minimum required cumulative GPA in an applicable master's degree program higher than the standard minimum of 3.00?

No

Applicants are required to submit:

- graduate admissions application and application fee
- official transcripts
- proof of English proficiency

Select additional requirements:

professional resume
two letters of recommendation
written statement

Additional Application Requirements/Materials

An applicant whose native language is not English must provide proof of English proficiency regardless of current residency. If applicable, list any English proficiency requirements that are supplementary to the Graduate College requirement.

An applicant whose native language is not English must demonstrate proficiency in the English language by scoring at least 90 on the Internet-based TOEFL (iBT) or 7 on the IELTS, or 115 on the duolingo.

If any required components require further explanation, explain here.

Additional Admission Information:

Concurrent applicants to the ASU School of Medicine and Advanced Medical Engineering can also submit their MCAT score, but this is not required.

Graduate Application Information

Indicate the first term and year in which applications will be opened for admission. Applications will be accepted on a rolling basis after that time. The regular session is only available for summer.
Note: It is the academic unit's responsibility to display program deadline dates on their website.

Campus or Location	Term	Session
Tempe	Fall	Regular
Downtown Phoenix	Fall	Regular

Application Deadlines

Modality	Term	Session	Deadline	Type
In-Person	Fall	Session A/C	2026/06/01	Final

Program Admission Deadline Website Address
https://sbhse.engineering.asu.edu/

Fees

Is a program fee required?
Yes

Is the unit willing and able to implement the program if the fee is denied OR if an existing fee is determined to not apply to this program?
No, we are not able to implement the program.

Degree Search and Operational Information

Marketing Description
Build the future of medicine by bridging the gap between complex clinical challenges and innovative engineering solutions. Transform healthcare and save lives with a pioneering master's degree that puts you at the forefront of digital health technology.

Degree Search Program Description
The Master of Science program in medical engineering is designed to offer a unique multidisciplinary approach to tackling complex challenges in healthcare. At the intersection of engineering and clinical medicine, this program prepares students to use engineering principles and artificial intelligence to understand physiological systems, analyze current diagnostic

tools and treatments, and drive innovation in healthcare delivery systems.

Students will learn to reverse-engineer physiological systems to better understand fundamental mechanistic concepts in medicine and apply an engineering approach to analyze the impact and limitations of current technologies. The curriculum is designed to be accessible to a wide variety of STEM backgrounds, with a foundational qualitative approach that becomes more computational as students delve deeper into digital health technologies. Immersive experiences in industry or the clinic will empower students to become adept at identifying problems and designing solutions that comply with regulatory and user constraints. Students will work collaboratively, leveraging their diverse expertise to innovate and translate new technologies from concept to clinic.

This program prepares graduates to become leaders in developing transformative diagnostic tools, designing therapeutic strategies, and delivering impactful solutions for the future of healthcare.

Provide a brief description of career opportunities available for this program.
Engineers with a background in medicine, and medical doctors with a background in engineering, can pursue opportunities in a variety of fields to develop and apply medical technologies. These skills can be applied to industries including:

- biomedical devices
- digital health innovation
- patient monitoring systems
- medical robotics
- healthcare artificial intelligence (AI) applications

Global Experience: Provide a brief description of global opportunities or experiences (study abroad, international internships) available for this program.
N/A

ONET/SOC Codes: Career Options
17-2031.00 Biomedical Engineer19-1042.00 Medical Scientist29-1216.00 Medical Doctor (MD)

Professional Licensure
N/A

Additional Professional Licensure Information
N/A

Degree Search Contact Information and Support

Building Code
Engneerng Cntr G (ECG)

Room Number
334

Program Email Address
sbhse@asu.edu

Program Office Telephone Number
480-965-3028

Program Website Address
https://sbhse.engineering.asu.edu/

Keywords

Biomedical EngineeringBiomedical DiagnosticsMedical DevicesMedical ProfessionalArtificial IntelligenceEngineering
Engineering Design

List New Keywords

Select one (1) primary area of interest from the list below that applies to this program
Engineering & Technology

Select one (1) secondary area of interest from the list below that applies to this program
Health & Wellness

Program Assessment

Attach a PDF copy of the assessment plan printed from the University Office of Evaluation and Educational Effectiveness assessment portal demonstrating UOEEE's approval of your assessment plan for this program.

- MS1750810313_UOEEE_received.pdf

Supporting Documents

Additional Supporting Documentation (Impact statements should be above under Collaboration and Impact)

Please describe the attached files and their relevance to the proposal.

Dependencies

Dependencies

There are no dependencies

School of Medicine and Advanced Medical Engineering
Arizona State University

HONORHEALTH Primary Clinical Affiliate

Sarah Hollingsworth "Holly" Lisanby, MD, DLFAPA
Founding Dean and Foundational Professor with Tenure
ASU School of Medicine and Advanced Medical Engineering
Sarah.Lisanby@asu.edu | 602-496-0410

8/6/2025

Heather A. Clark, PhD
Director, School of Biological and Health Systems Engineering, Fulton Schools of Engineering
Senior Associate Dean, Engineering Integration, School of Medicine and Advanced Medical Engineering
Olin Endowed Chair
Arizona State University

Dear Dr. Clark,

I am writing to offer my *strongest and most enthusiastic* support for the launch of the new Master of Science in Medical Engineering program—an inspired and timely initiative that stands to transform not only our curriculum, but the future of health care innovation itself.

This program is a bold step toward building a seamless and strategic bridge between medicine and engineering. It opens up an extraordinary opportunity to immerse students in a learning environment where clinical insight meets technological ingenuity—an intersection that is driving some of the most impactful breakthroughs in modern health care. From digital diagnostics and wearable therapeutics to personalized medicine powered by artificial intelligence, the applications are vast—and growing by the day.

At the ASU School of Medicine and Advanced Medical Engineering, we are thrilled at the prospect of partnering with the Fulton Schools of Engineering to co-create a program that doesn't just respond to the needs of the moment, but anticipates the needs of the future. This is not a retrofitted degree—it is a purpose-built program that will be *deeply integrated* with our medical education curriculum and steeped in the principles of innovation. Students will emerge from this program with the interdisciplinary mindset, technical fluency, and entrepreneurial spirit needed to lead in a health ecosystem being reshaped by AI, data science, and engineering.

I am confident that this collaborative endeavor will become a national model for what medical and engineering education can achieve when united by a common vision—and I cannot wait to see the extraordinary innovations that will emerge from it.

Regards,

Sarah "Holly" Hollingsworth Lisanby, MD, DLFAPA
Founding Dean and Foundation Professor with Tenure
School of Medicine and Advanced Medical Engineering
Arizona State University

From:	Charla Griffy-Brown
To:	Sergio Quiros
Cc:	Lena Booth
Subject:	RE: MS in Medical Engineering – Statement of Support Request
Date:	Tuesday, September 9, 2025 9:49:45 AM
Attachments:	image001.png image002.png

We support this program.

Dr. Charla Griffy-Brown
Director General and Dean | Professor Global Digital Transformation |
Thunderbird School of Global Management, Arizona State University|
c: 310-420-2524
thunderbird.asu.edu

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From: Sergio Quiros <Sergio.Quiros@asu.edu>
Sent: Tuesday, September 9, 2025 9:44 AM
To: Charla Griffy-Brown <charla.griffybrown@thunderbird.asu.edu>; Lena Booth <Lena.Booth@thunderbird.asu.edu>; Josh Allen <Joshallen@thunderbird.asu.edu>
Cc: Teresa Wu <Teresa.Wu@asu.edu>; Amanda Morales-Calderon <AMANDA.MORALES-CALDERON@asu.edu>; Sophia Mcgovern <somcgove@asu.edu>; Jeremy Helm <JEREMY.HELM@asu.edu>; Patrick Phelan (Professor) <phelan@asu.edu>; Heather Clark (SBHSE) <Heather.Ann.Clark@asu.edu>; Rebecca Gant <Rebecca.Gant@asu.edu>; Elizabeth Tripodi <etripodi@asu.edu>
Subject: MS in Medical Engineering – Statement of Support Request

Sent on behalf of Teresa Wu

Hello,

I am writing to request an impact/support letter (email will suffice) for the proposed MS in Medical Engineering.

Please note that the Graduate College has requested a response before September 12, 2025.

Let me know if you have any questions or need additional information.

Teresa Wu
Vice Dean, Academic and Student Affairs
President's Professor, School of Computing and Augmented Intelligence
Director, ASU-Mayo Center for Innovative Imaging
Ira A. Fulton Schools of Engineering
Arizona State University

Sergio Z. Quiros
Assistant Director of Academic Administration
Ira A. Fulton Schools of Engineering
Arizona State University
Tempe, AZ 85287-8109
Phone: 480/727-5770
Email: Sergio.Quiros@asu.edu

From:	Kate Brown
To:	Teresa Wu; Sergio Quiros
Cc:	Michael Yudell; Julie Liss; Stavros Kavouras; Amanda Morales-Calderon; Sophia Mcgovern; Jeremy Helm; Patrick Phelan (Professor); Heather Clark (SBHSE); Rebecca Gant; Elizabeth Tripodi; Rebecca Scott
Subject:	Re: MS in Medical Engineering – Statement of Support Request
Date:	Thursday, September 11, 2025 4:00:30 PM
Attachments:	image.png image.png

Sent on behalf of Julie Liss

Dear Teresa,

The College of Health Solutions is pleased support the proposed **MS in Medical Engineering**. This program represents an exciting and timely opportunity to bring together engineering, data science, and the health professions in ways that will advance both education and innovation at ASU.

The program's emphasis on interdisciplinary collaboration between engineers and health professionals complements our college's focus on preparing students to solve complex health challenges through evidence-based, systems-level approaches. As such, we welcome the opportunity to collaborate with the School of Biological & Health Systems Engineering and the School of Medicine and Advanced Medical Engineering.

Areas of potential collaboration include joint project opportunities in research and clinical settings, faculty expertise in health systems, health informatics, and population health, as well as support for training in the societal and ethical dimensions of health technologies.

We look forward to exploring how this program can connect with existing initiatives across CHS and ASU to create meaningful pathways for students and impactful outcomes for the communities we serve.

Kind regards,
Julie

Julie Liss, PhD CCC-SLP
Senior Associate Dean of Academic Success
Professor of Speech and Hearing Science
Senior Editor of Registered Reports, *Journal of Speech, Language, and Hearing Research*
Fellow, American Speech-Language-Hearing Association

Arizona State University | College of Health Solutions
550 N. 3rd Street, Phoenix, AZ 85004 | Health North|
For assistance or to request a meeting, please email Bernadette.Elliott@asu.edu
**Note: If you have received this email outside of your working hours, please don't feel obligated to respond before your next workday begins.*
| chs.asu.edu

College of Health Solutions
Arizona State University

Kate Brown, MEd (she/her/hers)
Sr. Director, Academic Success and Innovation
Arizona State University | College of Health Solutions
550 N. 3rd Street, Phoenix, AZ 85004 | Health North Room 512C
O: 480-727-4672 | katebrown@asu.edu | chs.asu.edu

I live and work in the ancestral homelands of the Akimel O'odham (Pima) and Pee Posh (Maricopa) peoples and benefit from their ongoing stewardship and place-based knowledge.

I understand our working hours may differ, so please do not feel obligated to respond outside of your normal working schedule.

From: Sergio Quiros <Sergio.Quiros@asu.edu>
Sent: Tuesday, September 9, 2025 9:44 AM
To: Julie Liss <JULIE.LISS@asu.edu>; Kate Brown <KateBrown@asu.edu>; Rebecca Scott <Becky.Scott@asu.edu>
Cc: Teresa Wu <Teresa.Wu@asu.edu>; Amanda Morales-Calderon <AMANDA.MORALES-CALDERON@asu.edu>; Sophia Mcgovern <somcgove@asu.edu>; Jeremy Helm <JEREMY.HELM@asu.edu>; Patrick Phelan (Professor) <phelan@asu.edu>; Heather Clark (SBHSE) <Heather.Ann.Clark@asu.edu>; Rebecca Gant <Rebecca.Gant@asu.edu>; Elizabeth Tripodi <etripodi@asu.edu>
Subject: MS in Medical Engineering – Statement of Support Request

Sent on behalf of Teresa Wu

Hello,

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Please note that the Graduate College has requested a response before September 12, 2025.

Let me know if you have any questions or need additional information.

Teresa Wu
Vice Dean, Academic and Student Affairs
President's Professor, School of Computing and Augmented Intelligence
Director, ASU-Mayo Center for Innovative Imaging
Ira A. Fulton Schools of Engineering

Arizona State University

Sergio Z. Quiros
Assistant Director of Academic Administration
Ira A. Fulton Schools of Engineering
Arizona State University
Tempe, AZ 85287-8109
Phone: 480/727-5770
Email: Sergio.Quiros@asu.edu

From: Karen Schupp
To: Teresa Wu
Cc: Sergio Quiros; Amanda Osman
Subject: Re: MS in Medical Engineering – Statement of Support Request
Date: Wednesday, September 10, 2025 5:13:28 PM

Dean Wu:

The Herberger Institute for Design and the Arts supports the development of the proposed MS in Medical Engineering. We do not anticipate this program will impact or overlap with any of our current graduate offerings.

Sincerely,

Karen Schupp
Thanks,

Karen

Karen Schupp (she/her)
Associate Dean of Academic Programs and Curriculum
Herberger Institute for Design and the Arts
Arizona State University

Professor of Dance
School of Music, Dance and Theatre
Arizona State University

Senior Global Futures Scholar
Julie Ann Wrigley Global Futures Laboratory
Arizona State University

Editor-in-Chief
Journal of Dance Education

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> On Sep 9, 2025, at 9:44 AM, Sergio Quiros <Sergio.Quiros@asu.edu> wrote:
>
> *Sent on behalf of Teresa Wu*
>
> Hello,
>
> I am writing to request an impact/support letter (email will suffice) for the proposed MS in Medical Engineering.
>
> Please note that the Graduate College has requested a response before September

12, 2025.

Let me know if you have any questions or need additional information.

Teresa Wu
Vice Dean, Academic and Student Affairs
President's Professor, School of Computing and Augmented Intelligence
Director, ASU-Mayo Center for Innovative Imaging
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<MS in Medical Engineering.pdf>

From:	Sergio Quiros
To:	Rachel La Vine
Cc:	Teresa Wu; Amanda Morales-Calderon; Sophia Mcgovern; Jeremy Helm; Patrick Phelan (Professor); Heather Clark (SBHSE); Rebecca Gant; Elizabeth Tripodi
Subject:	MS in Medical Engineering – Statement of Support Request
Date:	Tuesday, September 9, 2025 9:44:00 AM
Attachments:	MS in Medical Engineering.pdf

Sent on behalf of Teresa Wu

Hello,

I am writing to request an impact/support letter (email will suffice) for the proposed MS in Medical Engineering.

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MS in Medical Engineering

ES-Ira A Fulton Schools of Engineering

Mission

Our mission is to educate physicians and engineers who can harness the power of digital health technologies to revolutionize patient care and healthcare delivery. By integrating expertise in engineering, medical sciences, and augmented intelligence (AI) within a human-centered framework, we empower students to design, develop, and implement innovative digital solutions to address complex health challenges. Through a curriculum emphasizing interdisciplinary collaboration, translational research, and entrepreneurship, our graduates will lead advancements in telemedicine, wearable technologies, data-driven diagnostics, and personalized healthcare systems. Graduates will embody the core values championed by ASU by actively contributing to the advancement of healthcare with a focus on societal impact, inclusivity and excellence. They will be equipped to adapt with the changing AI landscape as well as shape the future of digital health.

Goals

The goal of the Medical Engineering Master of Science program is to empower students to translate unmet clinical needs into actionable engineering problems. It will provide students with a deep appreciation for human physiology, disease pathology, clinical workflows, and patient care, as well as a foundational understanding of engineering principles, quantitative analysis, and design methodologies. Students will gain the skills to contribute to the design and implementation of medical devices, understand the regulatory landscape and collaborate effectively, driving innovation to bring transformative tech from concept to clinic.

Outcome 1

Students will integrate engineering and biologic principles to analyze the body from a systems perspective.

Concepts	Competencies
design principles related to signal generation, acquisition, and analysis; impacts of transport phenomena and biomechanics on signal generation; application of technologies; solution implementation; quantitative reasoning strategies; fundamental biomedical knowledge including familiarity with human organ systems	Students will demonstrate basic understanding of human biology and how measurements are made in clinical contexts. Students will describe connections between biochemistry, production and measurement of clinically relevant signals. Students will demonstrate a comprehensive understanding of how and when to apply core engineering principles, including: (i) signal generation, acquisition, and analysis, (ii) transport phenomena, and (iii) biomechanics, to diverse problems in biology and medicine.

Assessment Process

For Measure 1.1, students in BME 503 Applications in Medical Engineering 1 will complete an end-of-course project to employ explainable-AI workflows to interpret physiologic datasets. End-of-course project assessed with a detailed rubric focusing on data analysis and engineering principles. For Measure 1.2, students in BME 504 Applications in Medical Engineering 2 will complete regular engineering problem sets for each module or body system of focus to evaluate mastery of the material. Faculty-designed rubrics will be used to assess competence in the students' understanding of how and when to apply core engineering principles. For Measure 1.3, the Graduate and Law Student Report Card (GLSRC) Survey will be used to collect indirect data from student respondents. Data will be compiled from the three measures and reviewed by the program committee. In areas where student performance is unable to meet the proposed criteria, we will identify potential weaknesses and adopt strategies in consultation with our program faculty, clinical partners, and our advising team. As necessary, our advising team will meet with individual students to address potential areas of concern with progress in the course. Data from the assessment will be used for continuous improvement of the curriculum.

Measure 1	Performance Criterion 1
BME 503 Applications in Medical Engineering 1, projects, measured with faculty-developed rubric	At least eighty percent (80%) of students will achieve (rating 4) or exceed (rating 5) on an established rubric.
Measure 2	**Performance Criterion 2**
BME 504 Applications in Medical Engineering 2, engineering problem sets, measured with faculty-developed rubric	At least eighty percent (80%) of students will achieve (rating 4) or exceed (rating 5) on an established rubric.
Measure 3	**Performance Criterion 3**
Graduate and Law Student Report Card (GLSRC) Survey question addressing critical thinking skills	80% of survey respondents will indicate "Strong" or "Very Strong".

Outcome 2

Students will apply principles and practices of digital healthcare systems to address challenges in patient care and medical systems.

Concepts	Competencies
information technology, data science, artificial intelligence fundamentals, programming languages, prompts, types of biomedical instrumentation, medical problem identification, medical solution development	Students will demonstrate core engineering principles, problem-solving, effective teamwork, and quantitative reasoning. Students will develop a fundamental understanding of biomedical signal formation, acquisition, and analysis, as well as the application of data and artificial intelligence to biomedical problems to design, build, and present technologies. Students will address unmet clinical needs and apply artificial intelligence concepts to develop solutions that significantly advance healthcare technology.

Assessment Process

In BME 502 Fundamentals of AI for Medical Applications (Measure 2.1), students will complete mini projects with each learning module to assess their ability to apply principles and practices of data science and artificial intelligence. In BME 503 Applications in Medical Engineering 1 (Measure 2.2), students will complete problem sets to assess mastery of the material. Faculty-designed rubrics will be used to assess the projects and problem sets to show competence in the students' understanding of artificial intelligence principles and their application across diverse problems in biology and medicine. For Measure 2.3, the Graduate and Law Student Report Card (GLSRC) Survey will be used to collect indirect data from student respondents. Data will be compiled from the three measures and reviewed by the program committee. In areas where student performance is unable to meet the proposed criteria, we will identify potential weaknesses and adopt strategies in consultation with our program faculty, clinical partners, and our advising team. As necessary, our advising team will meet with individual students to address potential areas of concern with progress in the course. Data from the assessment will be used for continuous improvement of the curriculum.

Measure 1	Performance Criterion 1
BME 502 Fundamentals of AI for Medical Applications, mini projects, measured with faculty-designed rubric	At least eighty percent (80%) of students will achieve (rating 4) or exceed (rating 5) on an established rubric.
Measure 2	**Performance Criterion 2**
BME 503 Applications in Medical Engineering 1, problem sets, measured with faculty-developed rubric	At least eighty percent (80%) of students will achieve (rating 4) or exceed (rating 5) on an established rubric.
Measure 3	**Performance Criterion 3**
Graduate and Law Student Report Card (GLSRC) Survey question addressing knowledge of computer applications	80% of survey respondents will indicate "Strong" or "Very Strong".

Outcome 3

Students will design solutions to medical challenges that meet regulatory and user constraints associated with biomedical products and systems in research or clinical settings.

Concepts	Competencies
principles of design application, cohesive integration of problem identification, solution development, solution implementation, knowledge of design iteration and refinement	Students will apply innovative thinking and engineering design concepts to address challenges in medical engineering, including needs identification, market analysis, and human factors assessment. Students will outline the principles of design application, explain design iteration and refinement, and describe the pathway to regulatory approval.

Assessment Process

In BME 519 Medical Engineering Design Principles (Measure 3.1), students will choose a culminating project and work in small teams to translate an idea from design to prototype, evaluating and appropriately applying design and regulatory constraints of biomedical product design and development, concluding with a final written report with a component outlining their individual contributions. Students will be assessed on their responsiveness to FDA regulations, patient needs, and clinician input, in addition to being evaluated on their presentation of the project in a poster session and oral format using a faculty-designed rubric. For Measure 3.2, students will complete an immersive experience with an industry partner and document the technical and business viability of their ideas in a portfolio contribution. A faculty-designed rubric, including content, analysis, and clarity, will be used to assess student understanding of the material. In Measure 3.3, the Graduate and Law Student Report Card (GLSRC) Survey will be used to collect indirect data from student respondents. Data will be compiled from the three measures and reviewed by the program committee. In areas where student performance is unable to meet the proposed criteria, we will identify potential weaknesses and adopt strategies in consultation with our program faculty, clinical partners, and our advising team. As necessary, our advising team will meet with individual students to address potential areas of concern with progress in the course. Data from the assessment will be used for continuous improvement of the curriculum.

Measure 1	Performance Criterion 1
BME 519 Medical Engineering Design Principles, small group project, measured with faculty-developed rubric	At least eighty percent (80%) of students will achieve (rating 4) or exceed (rating 5) on an established rubric.
Measure 2	**Performance Criterion 2**
BME 515 Research in a Medically Integrated Experience (ReMIX), portfolio contribution, measured with faculty-developed rubric	At least eighty percent (80%) of students will achieve (rating 4) or exceed (rating 5) on an established rubric.

Measure 3	Performance Criterion 3
Graduate and Law Student Report Card (GLSRC) Survey - question addressing problem-solving	80% of survey respondents will indicate "Strong" or "Very Strong".

Outcome 4

Students will facilitate multidisciplinary collaboration to advance healthcare solutions by leveraging their integrated engineering and medical expertise.

Concepts	Competencies
collaboration, communication, adaptability, knowledge of systems integration, focus on solution implementation	Students will collaboratively apply knowledge from coursework, biomedical and healthcare delivery research, and mentorship to define a research question, validate the hypothesis, execute a research plan to extract new knowledge, and communicate their findings.

Assessment Process

For Measure 4.1, students will work together, combining their collective expertise, to define a research question and complete an interdisciplinary, culminating project that will include a written report in BME 528 Capstone Research 1 – Design. They will continue to develop their ideas, executing a research plan in BME 529 Capstone Research 2 – Implementation (Measure 4.2) and will complete a presentation to a combined audience of medical and engineering professionals. In both formats, students will be evaluated on their ability to integrate medical engineering principles to develop a novel solution or advancement in the field, work with others, including peers, mentors, and stakeholders, and effectively communicate their findings using a faculty-designed rubric. Student ability to collaborate will be evaluated via self-assessment, peer evaluation, faculty evaluation, and stakeholder evaluation, which will all factor into the final faculty-developed rubric. In Measure 4.3, the Graduate and Law Student Report Card (GLSRC) Survey will be used to collect indirect data from student respondents. Data will be compiled from the three measures and reviewed by the program committee. In areas where student performance is unable to meet the proposed criteria, we will identify potential weaknesses and adopt strategies in consultation with our program faculty, clinical partners, and our advising team. As necessary, our advising team will meet with individual students to address potential areas of concern with progress in the course. Data from the assessment will be used for continuous improvement of the curriculum.

Measure 1	Performance Criterion 1
BME 528 Capstone Research 1 - Design, small group project report, measured with faculty-developed rubric	At least eighty percent (80%) of students will achieve (rating 4) or exceed (rating 5) on an established rubric.

Measure 2	Performance Criterion 2
BME 529 Capstone Research 2 - Implementation, small group project presentation, measured with faculty-developed rubric	At least eighty percent (80%) of students will achieve (rating 4) or exceed (rating 5) on an established rubric.

Measure 3	Performance Criterion 3
Graduate and Law Student Report Card (GLSRC) Survey - question addressing ability to work in teams	80% of survey respondents will indicate "Strong" or "Very Strong".