



# MAC IBIOMED

## Annual Report

2021-22  
Academic Year

“

THE WORLD NEEDS  
STUDENTS LIKE THOSE  
IN IBIOMED...

The challenges of online classes, restrictions, and other hurdles have ingrained one of the most desirable lessons of all... resilience. I am optimistic because I know no matter what challenges come our way, we can handle it. **We have professors, advisors, and classmates who are all invested in our success.** We source strength from our community and draw upon the innovation in our nature. Each of us has overcome personal storms; yet, here we are, still standing. I am beyond grateful to have chosen iBioMed. **2021 was a year of growth.**

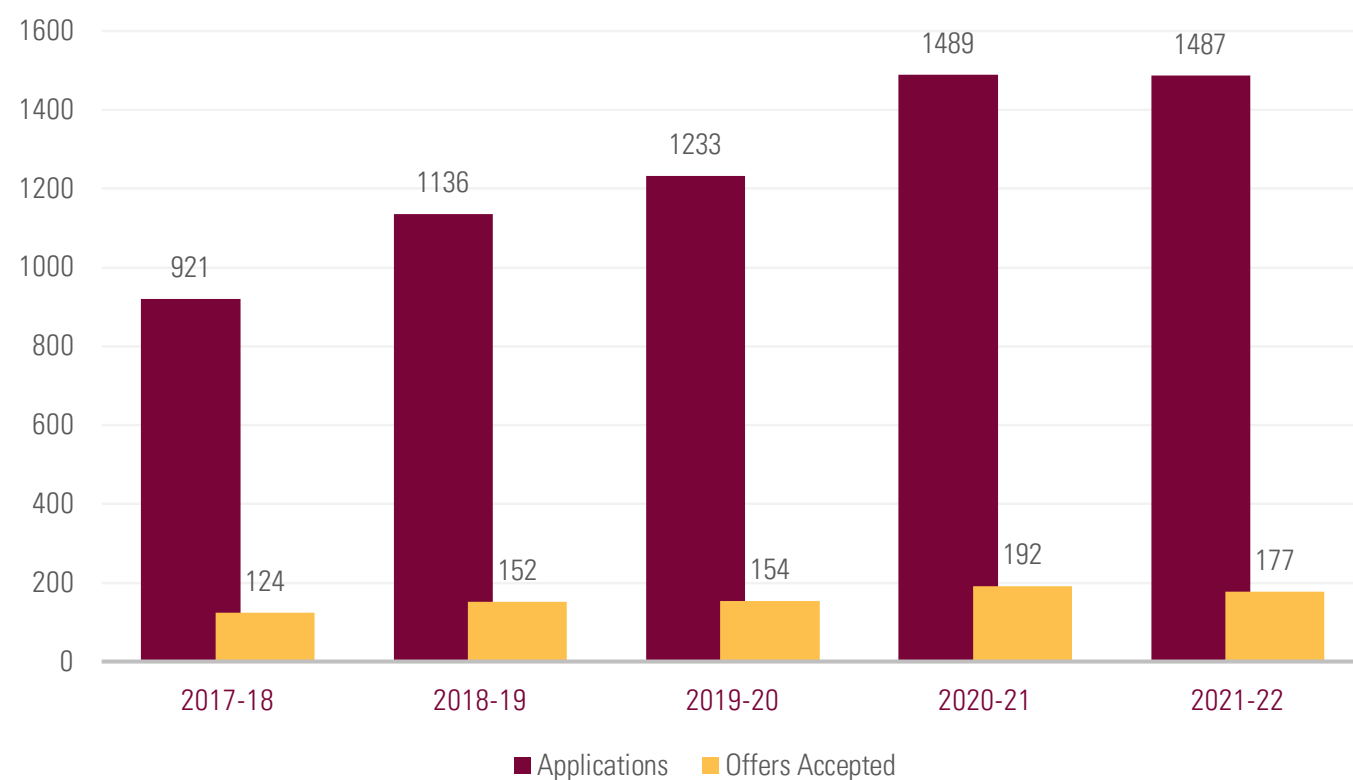
**Halle Lawson,**  
First-Year iBioMed Student



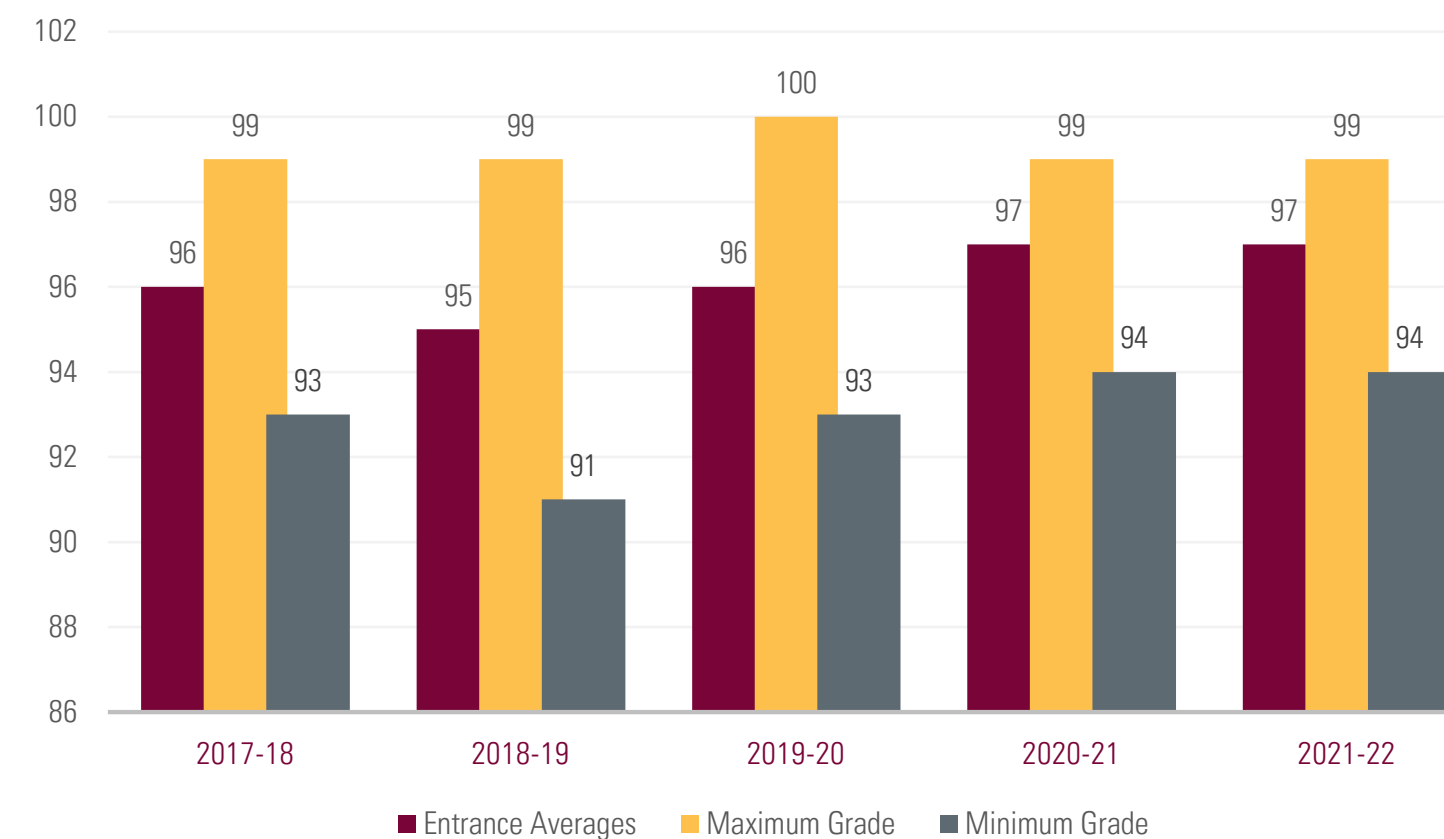
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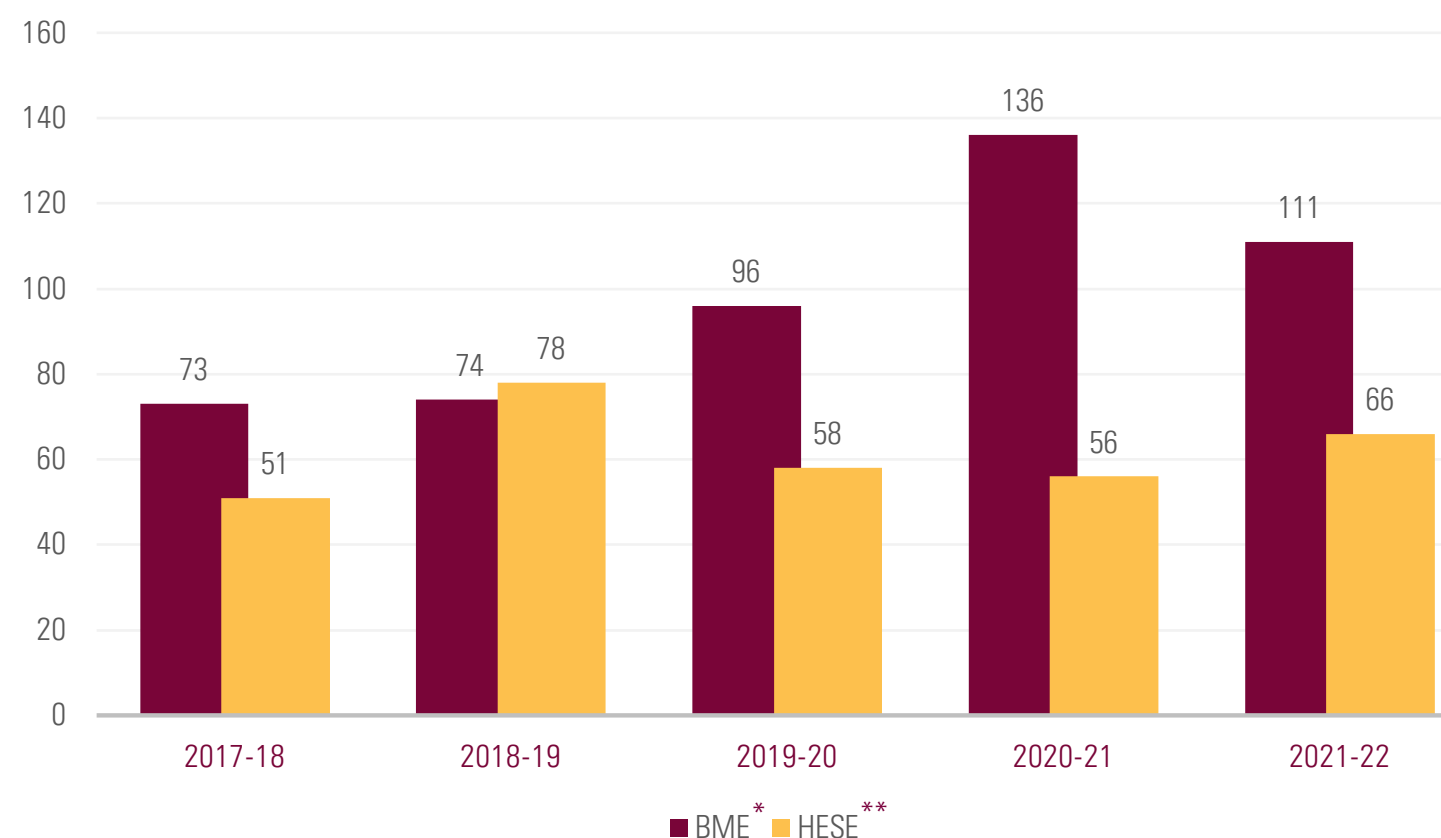
# APPLICATIONS & ADMISSIONS



# ENTRANCE AVERAGES

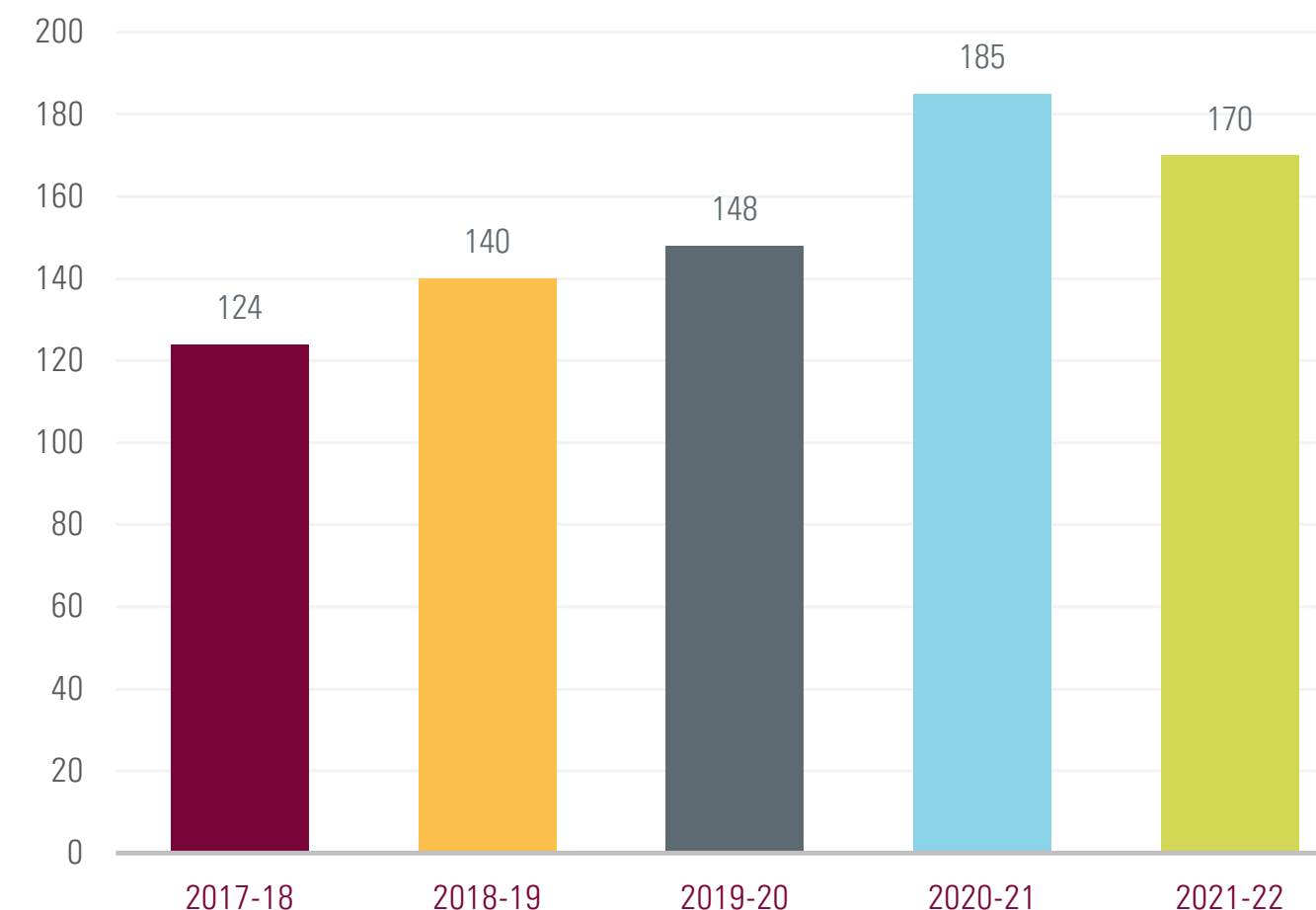


# SUBJECT OF MAJOR INTEREST UPON ENTRANCE



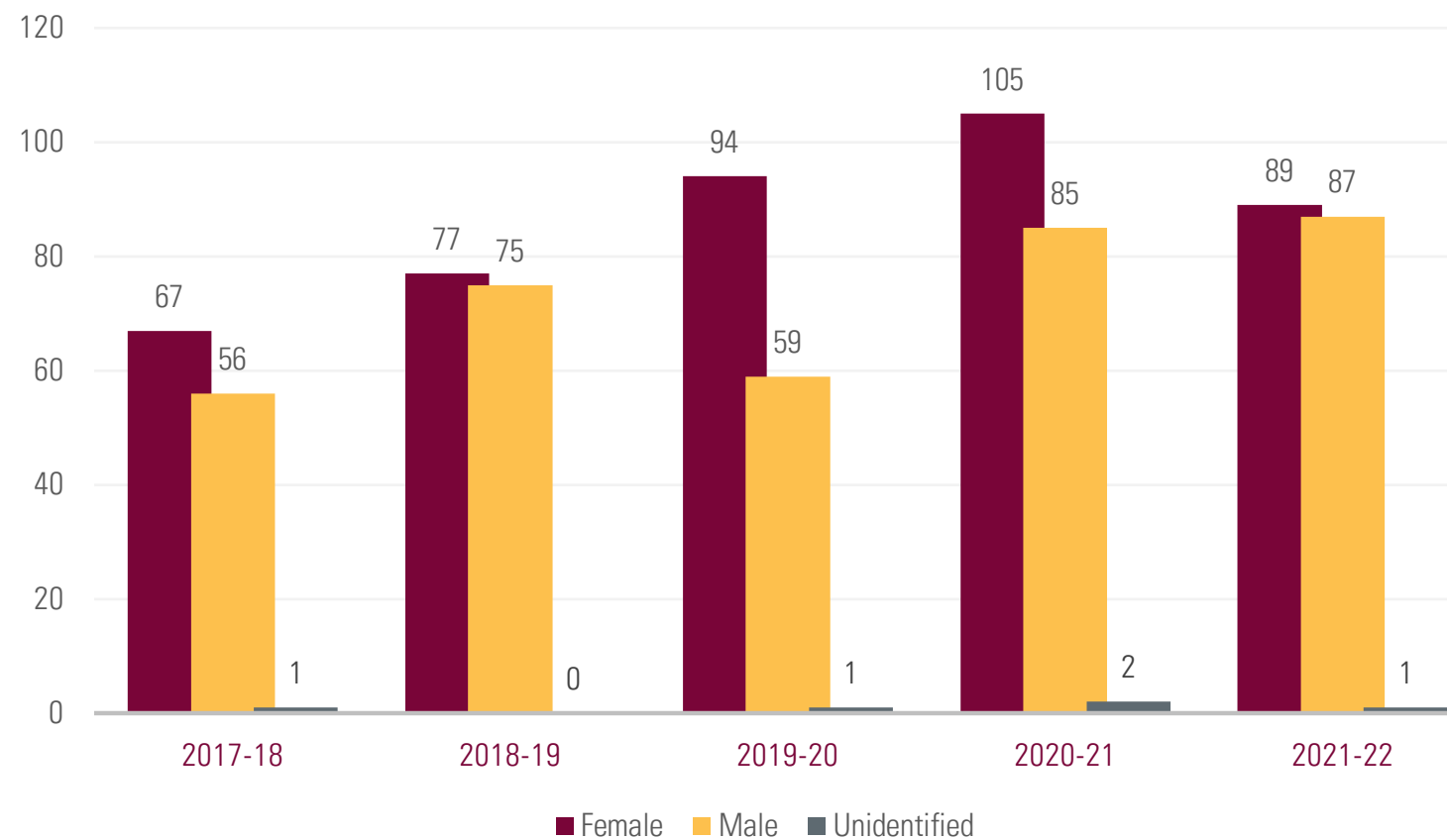
\*Biomedical Engineering \*\*Health, Engineering Science and Entrepreneurship

# UNDERGRADUATE ENROLMENT HEADCOUNT

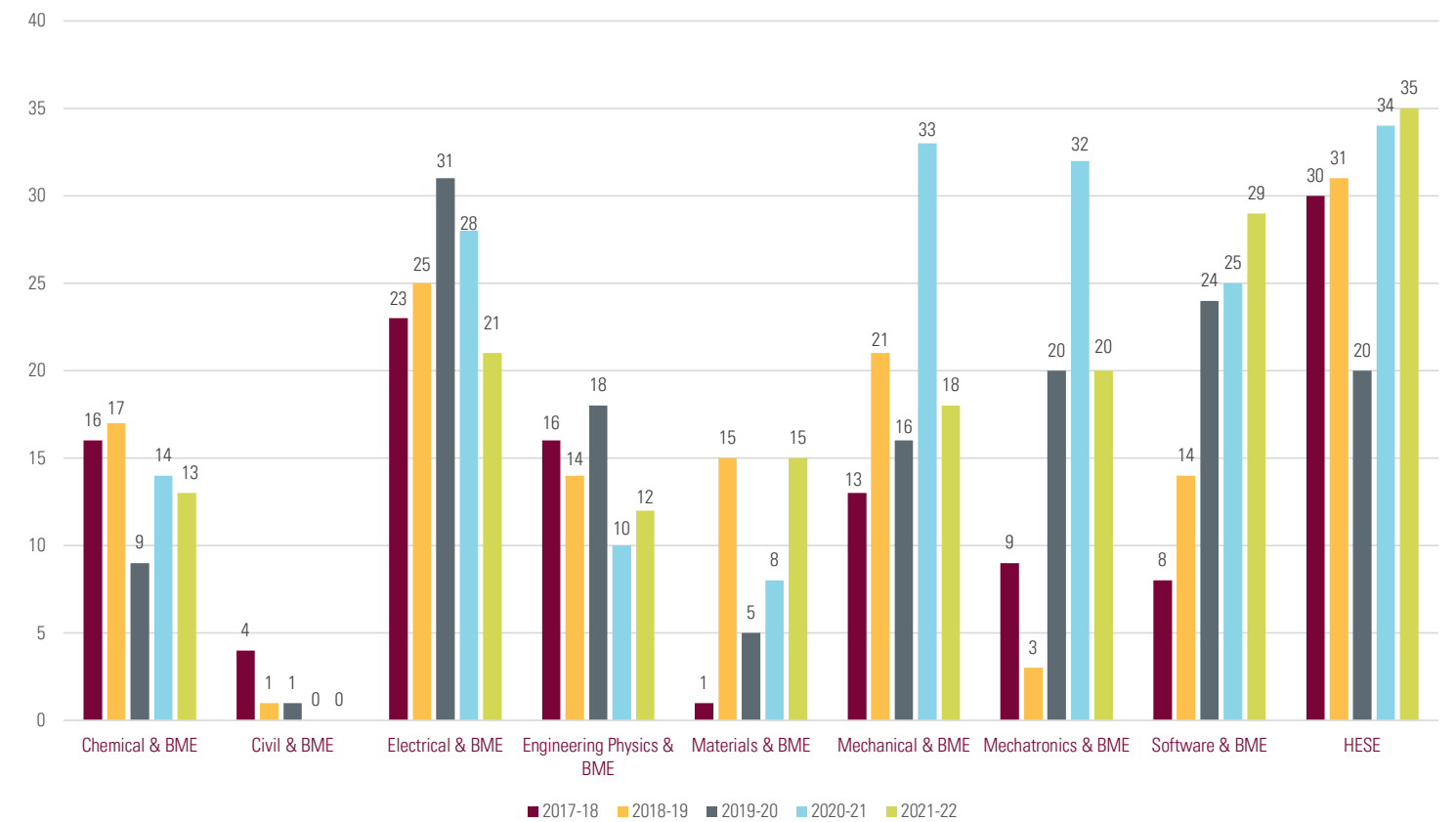


Data is based on the November 1st headcount

# LEVEL I STUDENT GENDER RATIO AT ADMISSION



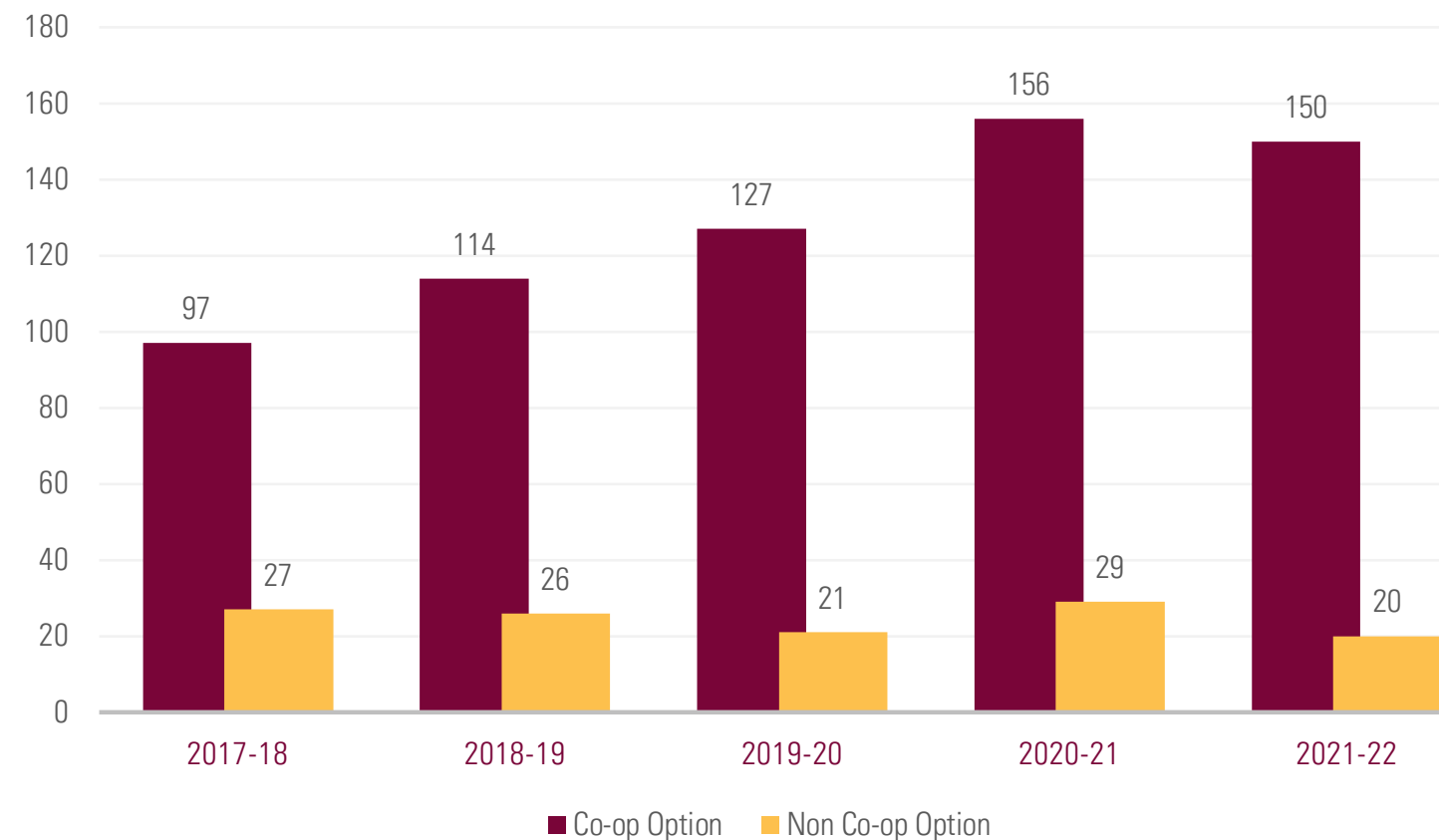
# LEVEL II PROGRAM ALLOCATION BY COHORT



Data is based on June numbers at allocation deadline



# LEVEL I CO-OP PROGRAM SELECTION



Data is based on the November 1st headcount

Over 250 iBioMed students received co-op placements during the 2021-22 academic year!



# EMPLOYMENT PARTNERS



# STUDENT ACHIEVEMENTS



## LIANNA GENOVESE

iBioMed graduate, Lianna Genovese, won the 2021 James Dyson Award, the 2021 Global Innovation Award at the Global Student Entrepreneur Awards (GSEA), and the People's Choice Award from the Arthritis Society. Lianna graduated in the Spring of 2022 from iBioMed's Mechanical & Biomedical Engineering program.



## DANIEL DUAN & ISABELLE RAGANY

Daniel and Isabelle, both Electrical & BME, were on a team that won first place in MacHacks, one of Canada's first major hackathons that enables students from all disciplines to collaborate and produce innovative solutions. They won with their design "Denatured."



## DANNY AL-SAMMAK & MATHUSHA KARUNAKARAN

Danny and Mathusha, both Electrical & BME, won first place in the International Marketing event at the McMaster DECA Case Competition. Participants were presented with an international marketing case and given 30 minutes to prepare a presentation.

# STUDENT ACHIEVEMENTS



## CAPSTONE SHOWCASE

Two teams of iBioMed students won awards at the 2022 Capstone Showcase. One group won the award for Best Biomedical Innovation with their device the Biofeedback Glove (pictured). The other team won Most Likely to Win Dragon's Den with their design SafeEats.



## BAJA RACE COMPETITION

A group of iBioMed students are part of McMaster's Baja Racing team, which came in third place in Maneuverability and 10th in overall performance at Baja SAE's Rochester competition that featured over 90 teams worldwide, from America, Canada, Brazil, India, and Saudi Arabia.



## DANIEL D'SOUZA

For the second year in a row, iBioMed Teaching Assistant, Daniel D'Souza, won the MSU TA Award. Daniel is a level 4 iBioMed HESE student.

# FIVE YEARS OF ACHIEVEMENTS

**The 2021-22 academic year saw iBioMed's first graduating class.**

There are a number of milestones that have been achieved along the way. Here are a few things the iBioMed family has been celebrating!

6



## GRADUATE SCHOOL

6 iBioMed students accepted into Grad School

65



## PROVOST HONOUR ROLL

65 iBioMed students were on the Provost Honour Roll

11



## MEDICAL SCHOOL

11 iBioMed students accepted into Medical School

Data is representative of academic years spanning 2017 - 2022



## IBIOMED ACCREDITED BY CEAB!

The iBioMed program is proud to announce that ALL EIGHT of its Biomedical Engineering (BME) programs have received accreditation from the Canadian Engineering Accreditation Board (CEAB) for the next three years, the maximum allowed for new engineering programs. Newly-accredited programs include: Chemical & BME, Civil and BME, Electrical & BME, Engineering Physics & BME, Materials & BME, Mechanical & BME, Mechatronics & BME, and Software & BME.

# FACULTY ACHIEVEMENTS

This past academic year, Dr. Anna Korol and Dr. Sean Park won the prestigious Department of Medicine Teaching Award. Shortly after winning this award, Dr. Korol was also presented with the McMaster Students' Union (MSU) Teaching award. They are both instructors for iBioMed's Health, Engineering Science & Entrepreneurship (HESE) program.

Dr. Korol is an Assistant Professor with the Department of Medicine, Division of Innovation. She teaches two iBioMed courses: IBEHS 1EP6 – Entrepreneurship in Biomedical Innovation: From Bench to Market, and IBEHS 4EE6 - Health, Engineering Science and Entrepreneurship III: Innovators in Scrubs.

Dr. Park is also an Assistant Professor with the Department of Medicine, Division of Education and Innovation, and has taught the iBioMed course IBEHS 2E06 – Health, Engineering Science and Entrepreneurship I: Human-Centered Design.

**This award is a celebration of the effort, creativity and collaboration required to make truly exceptional learning experiences.**

**The award means that I can work in an environment where I feel supported and am encouraged to bring my skills forward.**

**Dr. Sean Park,**  
Assistant Professor, Department of Medicine,  
Division of Education and Innovation







# IBIOMED GRADS

## IBIOMED GRADUATION AWARD RECIPIENTS

**Jeremy Colangelo, Mechanical & BME**  
(pictured front row, right)

Provost's Honour List

**Lianna Genovese, Mechanical & BME**  
(pictured back row, fourth from left)

The iBioMed Innovation Award

**Konrad Grala (pictured back row,  
second from right)**

The iBioMed Leadership Award and  
Provost's Honour List

**Yumna Irfan, HESE (not pictured)**

The iBioMed Community Impact Award  
and The iBioMed Top Academic Award

**Harshil Modi, Software & BME (pictured  
back row, third from left)**

Provost's Honour List and The iBioMed  
Top Academic Award

**Vikash Nanthakumar, HESE**  
(pictured back row, second from left)

Provost's Honour List and The iBioMed  
Top Academic Award

**Jeff Suitor, Mechatronics & BME**  
(pictured back row, fourth from right)

The iBioMed Leadership Award

**Zarik Virani, HESE (pictured back row,  
third from right)**

The iBioMed Top Academic Award

**Natalie Won, Mechanical & BME**  
(pictured front row, left)

Provost's Honour List

**Also pictured:**

Dr. Greg Wohl, iBioMed Co-Director, Engineering  
(far left), and Dr. Michelle MacDonald, iBioMed  
Co-Director, Health Sciences (far right)

## WHAT OUR GRADS ARE DOING



Medical School



Graduate Studies



Entrepreneurial pursuits



pursuing careers in engineering, healthcare,  
and finance?



### FAVOURITE IBIOMED MEMORY

In the design studio working late  
on a project, and we ordered pizza  
with a bunch of other groups.  
It was a great time to meet my  
peers, and have fun despite the  
stress of school!

**Yumna Irfan,  
2022 HESE Graduate**



# SUPPORTING WOMEN IN STEM

## IBIOMED PRESENTS DESIGN LIKE A GIRL

Due to last year's success, iBioMed hosted another offering of Design Like a Girl during summer 2022. This two-day workshop introduces female-identifying high school students to various STEM topics. Participants were later put into teams where they designed a solution to a real-world healthcare problem and pitched their solutions to a panel of iBioMed faculty and student judges.

## WHAT PARTICIPANTS LEARNED

Through a series of interactive workshops, participants learned how to code in Python, develop and deliver a pitch presentation, and work with electronics and sensors.

In just two days, teams designed solutions to healthcare problems ranging from mental wellness, effective use of medication in healthcare, effective workflow in healthcare, and more.

Teams then presented a 3-5 minute pitch to a panel of student and faculty judges where they competed for a chance to win one of three prizes:

- Most Innovative
- Most Entrepreneurial
- Best Presentation

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Coding has always been intimidating, but through these workshops I've been able to broaden my horizons and try new things!

Design Like a Girl Participant,  
Summer 2022

# IBIOMED EVENT HIGHLIGHTS



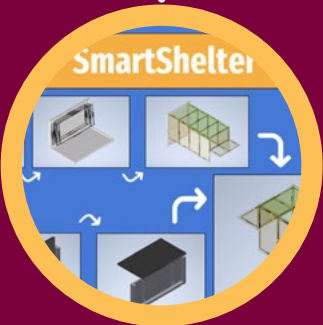
### 1P10 WINTER SHOWCASE

This year, IBEHS 1P10 hosted in-person showcases that highlighted student projects relating to hip implant designs and tracking and monitoring devices. Students displayed their hip implant designs in the form of a poster session, and tracking and monitoring projects were shared during an interactive showcases where teams displayed their working prototypes. Projects ranged from a personal CPR assistive device to devices that detect and alert the user of poor posture.



### FINAL SHOWCASE & CAPSTONE

This year, iBioMed hosted its first in-personal Final Showcase since the pandemic. Final Showcase projects ranged from devices that help those with rotator cuff injuries to a CDC BioFilm Reactor. This year also marked the first time iBioMed students were eligible to take the fifth-year Capstone course IBEHS 5P06. A team of level five Biomedical Engineering iBioMed students (pictured) designed the BioFeedback Glove. This project won the award for Best Biomedical Innovation at the 2022 Engineering Capstone Showcase.



### HESE DESIGNATHON PROVIDES SOLUTIONS FOR HAMILTON'S HOMELESS

To recognize Global Entrepreneurship week, HESE students in IBEHS 3R00 Current Research Initiatives II hosted a virtual designathon aimed at helping Hamilton's homeless community. This virtual event saw 19 participants collaborate over a two-day period. Teams constructed their designs using household materials or solid modeling and prepared a 5-minute pitch presentation for a panel of judges.

# IBIOMED EVENT HIGHLIGHTS



### IBIOMED YEAR-END SOCIAL

For the first time in two years, iBioMed was able to host its year-end social in-person. This year, iBioMed students celebrated the end of the year with a BBQ and bonfire at McMaster's Alpine Tower. In between games of Bean Bag Toss and Horseshoes, iBioMed students chatted with their fellow classmates, and iBioMed faculty and staff.



### FITNESS FEBRUARY

What better way to start the New Year than with iBioMed's Fitness February! This annual event brings together the iBioMed community as it gets fit for the month. Participants submit their weekly activity, and prizes are awarded throughout the month regardless of how much or little people work out. iBios of all fitness levels participate and keep each other motivated with healthy recipes and workout tips!



### IBIOMED GRADUATION BRUNCH

iBioMed saw its first graduating class this year. To celebrate the achievements of all graduates, the program hosted a graduation brunch. Speeches were given by iBioMed's Co-Directors Dr. Michelle MacDonald and Dr. Greg Wohl, and graduates had the opportunity to network and share best wishes with fellow grads and faculty.



# LAB SPACE

iBioMed students have access to **three unique and well-equipped Design Studio and Lab Spaces**. Below are a few highlights and cool tools that students get to use.

## IBIOMED GENETIC ENGINEERING LAB

- Bacterial incubator
- Refrigerated micro centrifuge
- Absorbance plate reader with micro-drop plate
- Horizontal gel tanks (x3)
- Electrophoresis power supplies (x2)
- New, spacious location in HSC 4H13 – it has windows!!!
- Ongoing upgrades to accommodate tissue culture work

## IBIOMED IMAGING & INSTRUMENTATION LAB

- Clarius Ultrasound Units
- Optical CT Scanners
- Quanser devices (robotic arm and terrestrial drone)

## IBIOMED DESIGN STUDIO

- New Prusa MK3S+ 3D printers
- Laser cutter (Trotec Speedy 100)
- CNC / PCB Milling Machine (Bantam Tools Desktop CNC)

# IBIOMED SOCIETY HIGHLIGHTS



The **iBioMed Society** hosted several **“Lecturer Series”** where instructors, entrepreneurs, clinicians and researchers from various backgrounds gave talks about their research and career paths.



**Annual 1P10 exam review sessions were held**, and students were provided with a guided review of core concepts covered throughout the course. Students also had the opportunity to ask their TAs course-related questions.



**In collaboration with the B-Tech Association**, biomedical and biotech industry professionals and students come together for an industry networking event.



**Several social events** such as Trivia Night, Games Night, E-Sports & Online Board Games were held giving students an opportunity to socialize and make new friends.



**iBioBuds.** The iBioMed Society continued to support students with iBioBuds, an initiative that pairs first-year iBioMed students with upper-year students. These partnerships help first-years as they transition from high school. They also provide an opportunity for friendships to be formed, alleviate stress and promote health and wellness.



# IBIOMED AMBASSADOR HIGHLIGHTS



The Ambassador program has grown to include **50 ambassadors and four committees**: Content Creation, Recruitment, TikTok, and Podcast committees. This growth has resulted in **increased engagement and followers** on iBioMed's social channels while also providing effective recruitment tools.



After the iBioMed program was approached by a high school's Women in STEM club, ambassadors **piloted a 6-week virtual workshop** that provided hands-on classes in coding, design thinking, pitching, commercialization, and career preparation. Content was **developed and delivered by Ambassadors** and supervised by iBioMed's Communications team.



An Ambassador Pen Pal program was established. This provides prospective students the **opportunity to connect with an iBioMed ambassador** and learn more about iBioMed and the overall student experience. First-year iBioMed students also connect with upper-year ambassadors for advice when selecting their level two program option.

## EXAMPLES OF AMBASSADOR-CREATED CONTENT THAT'S INCREASING ONLINE ENGAGEMENT AND PROMOTING THE PROGRAM:

**First-year student experience article:** <https://www.eng.mcmaster.ca/ibiomed/news/my-experience-first-year-ibiomed-student>

**Brainwaves, iBioMed's official podcast:** <https://anchor.fm/mcmasteribiomed>

**iBioMed Celebrates International Women's Day:** <https://www.eng.mcmaster.ca/ibiomed/news/ibiomed-celebrates-international-womens-day>

**iBioMed on TikTok:** <https://www.tiktok.com/@macibiomed>



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The most exciting aspect of iBioMed is the opportunity to combine health, engineering science and technology. I am very interested in working on projects and conducting research on how biomedical devices can be developed and used in a healthcare environment.

Ashwin Unnithan,  
First-Year iBioMed Student  
& iBioMed Ambassador

# IBIOMED FAMILY UPDATES



## DR. GREG WOHL

Dr. Wohl, iBioMed Co-Director, Engineering, will be on research leave for the 2022-23 academic term.



## DR. COLIN MCDONALD

Dr. McDonald will be the Acting iBioMed Co-Director, Engineering for the 2022-23 academic term.



## DR. VINCE LEUNG

Dr. Leung will be the Acting iBioMed Associate Director, Engineering for the 2022-23 academic term.

# WHERE YOU CAN FIND US



<https://www.ibiomed.mcmaster.ca>



<https://www.facebook.com/MaciBioMed>



<https://www.youtube.com/channel/UCFu54PgzoKpZtyC5Tc9XbQg>



<https://www.instagram.com/macibiomed/>



<https://www.linkedin.com/company/ibiomed-mcmaster-university/>



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Integrated Biomedical  
Engineering &  
Health Sciences



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