Unpack, Expose, Explore:

Understanding Your Interest in Medicine

Around 40% of incoming students at Rice express an interest in medicine, and most of them concurrently indicate an interest in the Biochemistry and Cell Biology minor. However, there are many other areas of study at Rice that may be better suited to your interests. Not every pre-med student at Rice is the same—your constellation of interests are likely different from those of your health-interested friends and you should enjoy and share in your diversity.

While there are critical courses to take your freshman and sophomore year that can keep you on track with the requirements for admission to medical school, it is important first to "unpack" your misconceptions to reveal genuine interests and then expose yourself to the many departments on campus with tools to address questions relating to human health and wellbeing (hint: you will find useful tools and approaches in all of them).

What Aspects of Health & Medicine Do You Find Most Interesting?

How do racial disparities affect access to healthcare?

Consider: **Sociology**

Sociology addresses interactions between people, bias, in-groups and out-groups, etc.

How does social stigma in particular cultures affect use of HIV testing facilities?

Consider: **Anthropology, Social psychology**

Anthropology addresses cultural differences. **Social psychology** addresses stigma and stereotypes.

How do we make meaning of illness? How do we talk/write about disease

Consider: **English, history, art, drama, classical studies, and other humanities areas**

These areas of study address human self expression and self understanding

How can we understand the spread and evolution of the Ebola virus?

Consider: **Ecology & Evolutionary Biology, Sociology**

Ecology/Evolutionary biology addresses the interaction of an organism with its environment, host-parasite interactions, natural selection, and evolution; **sociology** addresses the interpersonal interactions and networks through which disease is spread.

What is the molecular structure and causes of misfolded proteins in prion disease?

Consider: **physics, chemistry, chemical/biomolecular engineering, biophysics, biochemistry**

These areas address the chemical and physical interactions and forces between molecules and atoms.

How do I treat cancer with gold nanoparticles and light?

Consider: **physics**, **chemistry**, **chemical engineering**

These areas all study the properties and applications of nanoparticles

How do I design and test new drugs?

Consider: **chemistry, chemical engineering, cell biology**

Chemistry and **chemical engineering** can address issues such as rational drug design and organic synthesis, product extraction and purification; **cell biology** can view the effects that a particular compound has on cellular and molecular physiology.

How do we determine genetic risk factors for a particular disease?

Consider: **computer science, applied math, genetics**

All these areas offer tools to analyze genomic data.

How do we determine appropriate end-of-life care? What protocol is most humane for patients and families?

Consider: **philosophy, religious studies**

These areas are particularly equipped to ask ethical questions and give moral assessments of problems.

How do we build artificial organs, prostheses, and assistive devices?

Consider: **bioengineering, mechanical engineering, material science, kinesiology**

Bioengineering can combine biological knowledge and engineering skills to determine the best conditions for growing new organs. **Mechanical engineering, bioengineering and material science** can understand the mechanics, biomechanics, and material properties necessary for prosthetics and device design. **Kinesiology** can evaluate a assistive device's improvement on human performance

How do we understand the effect of a person's living environment on their wellbeing?

Consider: **earth science, ecology, civil and environmental engineering, social science, history, anthropology, architecture**

Earth science can reveal and predict the causes and effects of global climate change and pollution and can assist in our assessment of water, carbon energy sources, and other natural resources. **Ecology** can address the environmental effects on an organism. **Environmental engineering** can use earth science and ecology data to devise best practices and remediation plans. **Social sciences** can address social and political forces affecting how we address environmental problems. **History** and **anthropology** can describe effects of place on a culture. **Architecture** and **civil engineering,** with the help of **sociology** and **psychology,** can be used to design human-centered buildings, cities, parks, and transportation infrastructure.

How do we understand the workings of the mind and mental illness? How do we build assistive devices that interface with the mind?

Consider: **neuroscience, philosophy, linguistics, applied math, computer science, cell biology, chemistry, electrical engineering, psychology, cognitive science, and more**

Neuroscience offers a multidisciplinary approach to this problem encompassing all of the disciplines mentioned above.

How do we rapidly scan Twitter and Facebook to find trends that may be indicators of emerging disease or public health problems?

Consider: **linguistics, computer science**

Linguistics and **computer science** combined can produce tools to rapidly identify linguistic signatures of emerging disease before doctors see a physical pattern.

Interdisciplinary Majors/Minors that Address Many Questions Related to the Human Condition

- Poverty, Justice & Human Capabilities
- Study of Women, Gender & Sexuality
- Neuroscience
- Global Health Technologies