In 1930, the philosopher **Ludwig Wittgenstein** began his first lecture at Cambridge University with a note that he did not want his students to agree with him, but to learn how to think about problems in the right way. I would like to take the same approach with you in this course.

What I would like you to get from this course is not always agreement with me on particular claims, but a set of facts and a way of approaching the brain that helps you ask the right questions. Neuroscience offers some concrete facts — about neurons, synapses, circuits — and these facts are our keys, if we learn to use them properly.

People often come to neuroscience expecting either philosophy's ultimate answers—about consciousness, free will, or meaning—or calculus's certainty and closure. Neuroscience offers neither; it offers us only a partial solution of how the brain works.

Thus, I don't want to give you a single definition of neuroscience. What I want is for you to grasp the **fundamentals** and *character* of neuroscientific problems: they are concrete, technical, and yet connected to the deepest questions we can ask. If you had that sense, I could stop lecturing and you could begin investigating on your own.

Tackling a neuroscience problem is difficult because we are caught in the meshes of biology, technology limitations, and language. "Does consciousness arise from neurons firing?" (as someone might ask). "Where in the brain is the mind?" is not a question that a single, or any, fMRI scan will settle.

You might be tempted to give up on neuroscience if you only look for explanations of the kind philosophy seeks, as neuroscience does not hand us those answers. Instead, it gives us descriptions and mechanisms — the pieces of the puzzle we can actually measure.

And here lies the challenge and excitement: when you boil down big questions to data and experiments, the questions change their form. What evaporates are the sweeping abstractions. What remains are the measurable problems — and those are exactly what we can tackle together. This is why neuroscience is worth studying now, in your lifetime: you can help turn those big questions into answers.

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