## coursera



## Introduction

In the previous module we have looked at the basics of signal processing and introduced some simple examples by way of intuition. We are now going to set up a proper mathematical framework for the rest of the course.

The way we teach signal processing is a little bit different than usual. The fundamental idea is that we try to express most of the theoretical concepts in terms of linear algebra and vector spaces. While this may seem a little abstract at first, it will pay off handsomely in the end by providing us with very simple proofs of complex results (such as the sampling theorem). While this module may feel a bit dry and "math-y", do bear with us, it's worth the effort!

In this short introductory lecture we will make the case for using vector spaces in signal processing and provide you with simple intuitive examples of what vector spaces can do for us.

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