# Calculus Placement Guide:
Life Sciences Sequence

## Math 115: Life Sciences Calculus I

| Description | A first semester calculus class designed for life science majors. In addition to the basics of differential and integral calculus, topics shared with Math 111, the course includes an introduction to mathematical modeling with differential equations. Math 115 does not assume a calculus background, but a strong pre-calculus background is essential.

The sequel, Math 116, includes more modeling topics drawn mainly from population biology, and introductions to probability theory.

*Fall only*

| Prerequisites | Strong pre-calculus background

| Intended audience | Required for students majoring in Biology BS or in Neuroscience and Behavioral Biology (NBB). |

## Math 116: Life Sciences Calculus II

| Description | Introduction to the application of differential equations and probability theory in the life sciences. The course begins with a quick review of some integration techniques and exponential growth and decay. We study differential equations and some applications to biological systems. We then have brief introductions to the matrix and multivariable calculus topics needed to study systems of differential equations that model such phenomena as competition, predator/prey, and epidemics. There is an introduction to probability theory, followed by several applications to topics such as genetics.

*Fall and Spring*

| Prerequisites | Math 111 or 115, or a score of 4 or 5 on the AP AB exam.

| Intended audience | Required for students who are majoring in Biology BS and highly recommended for NBB. |

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**Note:**

Math 115 and 116 are not designed for students who wish to pursue higher-level math.