



# *The Hebrew University of Jerusalem*

## *Syllabus*

### *CALCULUS FOR LIFE SCIENCE MAJORS A - 71022*

*Last update 20-10-2022*

*HU Credits: 3*

*Degree/Cycle: 1st degree (Bachelor)*

*Responsible Department: Environmental Economics & Management*

*Academic year: 0*

*Semester: 1st Semester*

*Teaching Languages: Hebrew*

*Campus: Rehovot*

*Course/Module Coordinator: Dr. Anna Gourevitch*

*Coordinator Email: [anna.gourevitch@mail.huji.ac.il](mailto:anna.gourevitch@mail.huji.ac.il)*

*Coordinator Office Hours: 13-14*

*Teaching Staff:*

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Dr. Anna Gourevitch,  
Mr. Zvi Prissman

Course/Module description:

Real numbers, sets of real numbers. Functions and function notation, polynomial function, rational function, power function.

Limits, infinite limits, limits at infinity. Continuity of a function. Derivatives, L'Hospital's Rule. Investigating functions using derivatives. Primitive function and non definite integral. Introduction to ordinary differential equations.

Course/Module aims:

Introduce the functions of a single variable; Define limits; Define the derivative; Investigate functions.

Calculate Integrals, Solve simple ODE.

Learning outcomes - On successful completion of this module, students should be able to:

Calculate limits of single variable functions; Calculate derivatives; Investigate functions;

Calculate Integrals, Solving simple ODE.

Attendance requirements(%):

100

Teaching arrangement and method of instruction: lectures and exercises

Course/Module Content:

1. The real numbers, sets of numbers.

2. The function-Domain, Image ,Bounded functions  
Monotonic functions ,Odd and Even functions.

3. Limits.

4. Continuity.

5. Derivatives, the slope of tangent line. Differentiation rules, chain rule, higher order derivatives.

L'Hospital's Rule.

6. Investigation of functions: critical points and extreme values, increasing and decreasing intervals, asymptotes.

7. Non definite integral, introduction to ordinary differential equations.

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Required Reading:

*Lectures and exercises of the course*

Additional Reading Material:

Grading Scheme:

Additional information:

*The students must submit at least 75% of the exercises.*