

German International Abitur* Mathematics Curriculum

*Diploma from German secondary school qualifying for university admission

Semester	Content
11 1st semester	<p>Like Calculus I and parts of II</p> <p>Discrete Relations</p> <ul style="list-style-type: none"> • Infinite sequences and series <p>Limits</p> <ul style="list-style-type: none"> • Nature of limits • Calculate limits in simple applications • Using limits for determining numbers (e.g. e) <p>Derivatives</p> <ul style="list-style-type: none"> • Continuity, monotony • Techniques of differentiation and derivatives of higher grades • Graphing • Calculate and apply turning points, inflections points • Min-Max-Problems • Chain rule • Differentiation of rational functions • Applications to technical, physical and economic problems <p>Integrals</p> <ul style="list-style-type: none"> • Definite and indefinite integrals • Fundamental Theorem of calculus
11 2nd semester	<p>Like Calculus II and Linear Algebra I</p> <p>Integrals</p> <ul style="list-style-type: none"> • Techniques of integration • Chain rule • Applications to area, volume and physics • Infinite integrals

	<p>Functions</p> <ul style="list-style-type: none"> • Methods to determine zeroes and asymptotes • Drawing graphs of functions, also with CAS <p>Vectors</p> <ul style="list-style-type: none"> • Systems of linear equations • vectors in R^3, • Geometry of lines in R^3
<p>12 1st semester</p>	<p>Integrals</p> <ul style="list-style-type: none"> • Integrals of exponential functions
<p>12 2nd semester</p>	<ul style="list-style-type: none"> • Differential equations • Rate of change <p>Like Vectors</p> <p>Calculus</p> <ul style="list-style-type: none"> • Geometry of lines and planes in R^3 II, Linear • Intersection, relative position, angles and distance of lines and planes <p>Algebra I</p> <p>Probability and Statistics</p> <ul style="list-style-type: none"> • Descriptive statistics • Measure of central tendency • Probability • Discrete and continuous distribution functions • Mathematical expectation and variance <p>Like Probability</p> <ul style="list-style-type: none"> • Estimation hypothesis testing and • Confidence interval <p>Statistics</p> <ul style="list-style-type: none"> • Binomial distribution • Binary classification