

# **BS SCHEME OF STUDIES MATHEMATICS**

**DEPARTMENT OF MATHEMATICS**

**GCWUF**

**2019**

**Govt. College Women University Faisalabad  
Department of Mathematics**

**Scheme of Studies BS Mathematics Four Years Degree Program  
2019**

**Semester I**

<b>Course Code</b>	<b>Title of the Course</b>	<b>Credit Hours</b>
<b>Major Course</b>		

MTH-301	Calculus I	4(4-0)
MTH-303	Elements of Set Theory and Mathematical Logic	3(3-0)
<b>Minor Course</b>		
ENG-321	English-I :-Functional English	3(3-0)
ICT-321	Introduction to Computer	3(2-1)
PST-321	Pakistan Studies	2(2-0)
PHY-301	Mechanics I	3(3-0)
<b>Total</b>		<b>18(17-1)</b>

### Semester II

Course Code	Title of the Course	Credit Hours
<b>Major Course</b>		
MTH-302	Calculus II	4(4-0)
MTH-304	Discrete Mathematics	3(3-0)
<b>Minor Course</b>		
ENG-322	English II (Communication Skills	3(3-0)
ICT-323	Introduction to Programming	3(2-1)
ISL-408	Islamic Studies	2(2-0)
PHY-302	Mechanics II	3(3-0)
<b>Total</b>		<b>18(17-1)</b>

### Semester III

Course Code	Title of the Course	Credit Hours
<b>Major Course</b>		
MTH-401	Calculus III	4(4-0)
MTH-403	Ordinary Differential Equations	3(3-0)
<b>Minor Course</b>		
ECO-301	Principles of Micro Economics	3(3-0)
STA-320	Introduction to Statistical Theory	3(3-0)
ENG-421	English III: Technical Writing	3(3-0)
<b>Total</b>		<b>16(16-0)</b>

### Semester IV

Course Code	Title of the Course	Credit Hours
<b>Major Course</b>		
MTH-402	Affine and Euclidean Geometry	3(3-0)
MTH-404	Linear Algebra	3(3-0)
<b>Minor Course</b>		
PSY-301	Introduction to Psychology	3(3-0)
ARB-308	Arabic Language I	3(3-0)
CHM-300	Environmental Sciences	1(1-0)

<b>Total</b>		<b>13(13-0)</b>
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### Semester V

<b>Course Code</b>	<b>Title of the Course</b>	<b>Credit Hours</b>
<b>Major Course</b>		
MTH-501	Topology	3(3-0)
MTH-503	Differential Geometry	3(3-0)
MTH-505	Real Analysis I	3(3-0)
MTH-507	Algebra I	3(3-0)
MTH-509	Vector and Tensor Analysis	3(3-0)
MTH-511	Complex Analysis I	3(3-0)
<b>Total</b>		<b>18(18-0)</b>

### Semester VI

<b>Course Code</b>	<b>Title of the Course</b>	<b>Credit Hours</b>
<b>Major Course</b>		
MTH-502	Partial Differential Equations	3(3-0)
MTH-504	Classical Mechanics	3(3-0)
MTH-506	Complex Analysis II	3(3-0)
MTH-508	Real Analysis II	3(3-0)
MTH-510	Functional Analysis	3(3-0)
MTH-512	Algebra II	3(3-0)
<b>Total</b>		<b>18(18-0)</b>

### Semester VII

<b>Course Code</b>	<b>Title of the Course</b>	<b>Credit Hours</b>
<b>Major Course</b>		
MTH-601	Numerical Analysis I	3(3-0)
MTH-603	Number Theory	3(3-0)
MTH-605	Mathematical Statistics I	3(3-0)
MTH-629	Seminar	1(0-1)
<b>Elective Courses (2 courses out of following)</b>		
MTH-607	Advanced Group Theory	3(3-0)
MTH-609	Methods of Mathematical Physics	3(3-0)
MTH-611	Quantum Mechanics I	3(3-0)
MTH-613	Fluid Mechanics I	3(3-0)
MTH-615	Advanced Topology	3(3-0)

MTH-617	Algebraic Topology	3(3-0)
MTH-619	Continuous Groups	3(3-0)
MTH-621	Rings and Modules	3(3-0)
MTH-623	Special Theory of Relativity	3(3-0)
MTH-625	Operations Research	3(3-0)
MTH-627	Software Packages	3(2-1)
<b>Total</b>		<b>16(15-1)</b>

### **Semester VIII**

<b>Course Code</b>	<b>Title of the Course</b>	<b>Credit Hours</b>
<b>Major Course</b>		
MTH-602	Mathematical Statistics II	3(3-0)
MTH-604	Advanced Set Theory	3(3-0)
MTH-606	Numerical Analysis II	3(3-0)
MTH-630	Special Problem	1(0-1)
Elective Courses (3 Courses or 1 Course and (Project/Thesis/Internship)) from the following		
MTH-608	Theory of Modules	3(3-0)
MTH-610	Algebraic Number Theory	3(3-0)
MTH-612	Category Theory	3(3-0)
MTH-614	Galois Theory	3(3-0)
MTH-616	Probability Theory	3(3-0)
MTH-618	Theory of Elasticity	3(3-0)
MTH-620	Electromagnetism	3(3-0)
MTH-622	Quantum Mechanics II	3(3-0)
MTH-624	Theory of Optimization	3(3-0)
MTH-626	Measure Theory	3(3-0)
MTH-628	Combinatorics	3(3-0)
MTH-634	Fluid Mechanics II	3(3-0)
MTH-636	Integral Equations	3(3-0)
MTH-638	Graph Theory	3(3-0)
MTH-631	Project	6(0-6)
MTH-632	Internship	6(0-6)
MTH-633	Thesis	6(0-6)
<b>Total</b>		<b>19(18-1)</b>

<b>Program</b>	<b>Award</b>	<b>Duration</b>	<b>Semester</b>	<b>Credit Hours</b>
Bachelor of Sciences	BS Mathematics	4Years	8 Semesters	136

