

Department of Applied Sciences

Bachelor of Science (Hons.) Mathematics

Program Core

Code	Course Name	L-T-P	C
MAL 101N	Fundamentals of Mathematics	3-1-0	4
PYL 102N	Fundamentals of Physics	3-0-2	4
CHL101	Fundamentals of Chemistry	3-0-2	4
MAL 102	Analysis I	3-1-0	4
MAL 304N	Probability and Statistics	3-1-0	4
MAL 313	Integral & Vector Calculus	3-1-0	4
MAL 104	Differential Equations I	3-1-0	4
MAL 208	Linear Algebra	3-1-0	4
MAL 206	Mathematical Statistics	2-0-2	3
MAL 310	Numerical Analysis	2-0-2	3

Compulsory Courses

Code	Course Name	L-T-P	C
SML 161	Statistics & Research Methodology-I	4-0-0	4
CHL100	Environmental Studies	3-0-0	3
SML163	Understanding the Constitution	3-0-0	3
SML171	Fine Arts	1-0-2	2
SML167	Psychology for living	2-1-0	3
SML300	Entrepreneurship	2-0-2	3
CLL 120	HVPE	2-0-0	2

Program Electives

Code	Course Name	L-T-P	C
MAL 105N	Group Theory	3-1-0	4
MAL 303	Linear programming and its applications	3-1-0	4
MAL 201	Analysis II	3-1-0	4
MAL 205N	Higher Algebra	3-1-0	4
MAL 317	Mathematical Modeling	3-1-0	4
MAL 203	Differential Equations II	3-1-0	4
MAL 321	Mathematical Methods	3-0-2	4
MAL 311	Intro. to Complex Analysis	3-1-0	4
MAL 307	Discrete Mathematics	3-1-0	4
MAL 301	Data Analysis using R	3-0-2	4
CSL 313	Machine Learning	2-0-4	4

Open Electives

Code	Course Name	L-T-P	C
	Open Elective I	3-0-0	3
	Open Elective II	3-0-0	3
	Open Elective III	3-0-0	3
	Open Elective IV	3-0-0	3

Ability Enhancement Courses

Code	Course Name	L-T-P	C
CLL 101	Effective Communication-I	2-0-1	2.5
CLL 102	Effective Communication-II	2-0-1	2.5
MAR100	GP		1
MAR110	GP		1
MAR200	GP		1
MAR210	GP		1
MAR300	GP		1
MAR310	GP		1

Skill Development Courses

Code	Course Name	L-T-P	C
MAL106N	Basics of Computer Programming	3-0-2	4
MAD 300	Project	0-0-8	4
MAD 310	Project	0-0-8	4
MAT 100	Sumer Internship	0-0-6	3
MAL 320	Creativity and innovation		1

Note:

a) Upto 20% of courses can be done through MOOC courses subject to department approval.

b) Open electives can be chosen from University list of Open Elective courses.

Department of Applied Sciences

Bachelor of Science in Mathematics with Specialization in Data Science

Program Core

Code	Course Name	L-T-P	C
MAL 151	Engineering Maths 1	3-0-2	4
CSL106	FOCP-I	2-0-4	4
MAL 152	Engineering Maths II	3-0-2	4
CSL108	FOCP-II	2-0-4	4
MAL 102	Analysis I	3-1-0	4
MAL 313	Integral & Vector Calculus	3-1-0	4
MAL 304N	Probability and Statistics	3-1-0	4
MAL 104	Differential Equations I	3-1-0	4
MAL 208	Linear Algebra	3-1-0	4
MAL206	Mathematical Statistics	2-0-2	3
MAL 310	Numerical Analysis	2-0-2	3

Compulsory Courses

Code	Course Name	L-T-P	C
PYL 102N	Fundamentals of Physics	3-0-2	4
SML 161	Statistics & Research Methodology	4-0-0	4
CHL100	Environmental Studies	3-0-0	3
SML171	FINE ARTS	1-0-2	2
SML167	Psychology for living	2-1-0	3
SML300	Entrepreneurship	2-0-2	3
CLL 120	HVPE	2-0-0	2

Program Electives

Code	Course Name	L-T-P	C
CSL209	Data Structures	3-0-2	4
CSL 225	Programming for Data Science	2-0-4	4
MAL 301	Data Analysis using R	3-0-2	4
CSL214	DBMS	3-0-2	4
CSL227	Applied Computational Statistics	2-0-4	4
CSL236	Introduction to AI & ML	3-0-2	4
CSL232	Business Intelligence and Data Visualization	2-0-4	4
CSL313	Machine Learning	2-0-4	4
CSL311	Big Data	2-0-4	4
	Foreign Language Elective		
CLL 220	German	1-2-0	3
CLL 200	French	1-2-0	3
CLL 270	Spanish	1-2-0	3

Open Electives

Code	Course Name	L-T-P	C
	Open Elective I	3-0-0	3
	Open Elective II	3-0-0	3
	Open Elective III	3-0-0	3
	Open Elective IV	3-0-0	3

Ability Enhancement Courses

Code	Course Name	L-T-P	C
CLL 101	Effective Communication-I	2-0-1	2.5
CLL 102	Effective Communication-II	2-0-1	2.5
MAR100	GP		1
MAR110	GP		1
MAR200	GP		1
MAR210	GP		1
MAR300	GP		1
MAR310	GP		1

Skill Development Courses

Code	Course Name	L-T-P	C
	Project	0-0-8	4
	Project	0-0-8	4
	Sumer Internship	0-0-6	3
CLP300	Campus to Corporate		1

Note:

- Upto 20% of courses can be done through MOOC courses subject to department approval
- Open electives can be chosen from University list of Open Elective courses

Department of Applied Sciences

Bachelor of Science (Hons.) Physics

Program Core

Code	Course Name	L-T-P	C
PYL101	Waves & Oscillations	3-0-2	4
PYL 106	Solid State Physics	3-0-2	4
PYL 201	Electromagnetic Theory	3-1-0	4
PYL 105	Electricity & Magnetism	3-0-2	4
PYL 301	Digital Electronics	3-0-2	4
PYL 103	Applied Mechanics	3-1-0	4
PYL 104	Mathematical Physics I	3-1-0	4
PYL 203N	Thermodynamics & Statistical Mechanics	3-0-2	4
PYL 304	Electronic Devices	3-0-2	4
PYL 108	Quantum Mechanics	3-1-0	4
PYL 202	Mathematical Physics II	3-1-0	4
CHL 101	Fundamentals of Chemistry	3-0-2	4
MAL101N	Fundamentals of Mathematics	3-1-0	4
PYL102N	Fundamentals of Physics	3-0-2	4

Compulsory Courses

Code	Course Name	L-T-P	C
SML161	Statistics and Research Methodology	4-0-0	4
CHL100	Environmental Studies	3-0-0	3
SML163	Understanding the Constitution	3-0-0	3
SML171	Fine Arts	1-0-2	2
SML167	Psychology for living	2-1-0	3
SML 300	Entrepreneurship	3-0-0	3
CLL 120	Human Values and Professional Ethics	2-0-0	2

Program Electives

Code	Course Name	L-T-P	C
PYL204N	Atomic and Molecular Spectroscopy and Lasers	3-1-0	4
PYL207	Nuclear, Particle and Astrophysics	3-1-0	4
PYL110	Fundamentals of Electronic Communication	3-1-0	4
MAL310	Numerical Analysis	3-0-2	4
PYL206	Non Linear Optics	3-0-2	4
PYL208	Bio-Physics	3-1-0	4
ASL310	Polymer Composite	3-0-2	4
PYL305	Experimental and Analytical Techniques	3-0-2	4

PYL307	Fibre Optics	3-0-2	4
PYL303	Microprocessor	3-0-2	4
PYL306	Thin films and Nanomaterials	3-0-2	4
PYL308	Optical Communication	3-0-2	4
Foreign Language Elective			
CLL 220	German	1-0-2	3
CLL 200	French	1-0-2	3
CLL 270	Spanish	1-0-2	3

Open Electives

Code	Course Name	L-T-P	C
	Open Elective I	3-0-0	3
	Open Elective II	3-0-0	3
	Open Elective III	3-0-0	3
	Open Elective IV	3-0-0	3

Ability Enhancement Courses

Code	Course Name	L-T-P	C
CLL101	Effective Communication – I	2-0-1	2.5
CLL102	Effective Communication – II	2-0-1	2.5
PYR100	GP-I		1
PYR110	GP-II		1
PYR200	GP-III		1
PYR220	GP-IV		1
PYR300	GP-V		1
PYR330	GP-VI		1

Skill Development Courses

Code	Course Name	L-T-P	C
MAL106N	Basics of Computer Programming	3-0-2	4
MAL301	Data Analysis	2-0-2	3
PYD350	Project	0-0-8	4
PYD360	Project	0-0-8	4
PYL 310	Creativity and Innovation Outcome		1
PYT370	Summer internship	0-0-6	3

Note:

a) Upto 20% of courses can be done through MOOC courses subject to department approval

b) Open electives can be chosen from University list of Open Elective courses

Department of Applied Sciences

Bachelor of Science (Hons.) Chemistry

Program Core

Code	Course Name	L-T-P	C
CHL 101	Fundamentals of Chemistry	3-0-2	4
MAL 101N	Fundamentals of Math	3-1-0	4
PYL 102N	Fundamentals of Physics	3-0-2	4
CHL 201	Inorganic Chemistry-I	3-0-2	4
CHL 203	Organic Chemistry-I	3-0-2	4
CHL 205	Physical Chemistry-I	3-0-2	4
CHL 202	Inorganic Chemistry-II	3-0-2	4
CHL 204	Organic Chemistry-II	3-0-2	4
CHL 206	Physical Chemistry-II	3-0-2	4
CHL 301	Inorganic Chemistry-III	3-0-2	4
CHL 303	Organic Chemistry-III	3-0-2	4
CHL 305	Physical Chemistry-III	3-0-2	4
CHL 302	Inorganic Chemistry-IV	3-0-2	4
CHL 304	Organic Chemistry-IV	3-0-2	4

Compulsory Courses

Code	Course Name	L-T-P	C
SML 161	Statistics & Research Methodology-I	4-0-0	4
CHL 100	Environmental Studies	3-0-0	3
SML 163	Understanding the Constitution	3-0-0	3
SML 171	Fine Arts	1-0-2	2
SML 167	Psychology for living	2-1-0	3
SML 300	Entrepreneurship	2-0-2	3
CLL 120	Human Values and Professional Ethics	2-0-0	2

Program Electives

Code	Course Name	L-T-P	C
CHL 207	Analytical Chemistry	3-1-0	4
CHL 209	Green Chemistry and technology	3-1-0	4
PYL306	Thin films and Nanomaterial's	3-0-2	4
CHL 208	Biomolecules	3-1-0	4
CHL 212	Nano chemistry and Nano technology	3-1-0	4
PYL305	Experimental and Analytical Techniques	3-0-2	4
CHL 307	Quantum Chemistry	3-1-0	4
CHL 309	Physical Spectroscopy & Photochemistry	3-1-0	4
CHL 306	Electrochemistry	3-1-0	4
CHL 308	Polymer Chemistry and Its Applications	3-1-0	4
	Foreign Language Elective		
CLL 220	German	1-2-0	3
CLL 200	French	1-2-0	3
CLL 270	Spanish	1-2-0	3

Open Electives

Code	Course Name	L-T-P	C
	Open Elective I	3-0-0	3
	Open Elective II	3-0-0	3
	Open Elective III	3-0-0	3
	Open Elective IV	3-0-0	3

Ability Enhancement Courses

Code	Course Name	L-T-P	C
CLL101	Effective Communication – I	1-0-2	2.5
CLL102	Effective Communication – II	1-0-2	2.5
CHL 110	GP-I	1-0-0	1
CHL120	GP-II	1-0-0	1
CHL 210	GP-III	1-0-0	1
CHL 220	GP-IV	1-0-0	1
CHL 310	GP-V	1-0-0	1
CHL 320	GP-VI	1-0-0	1

Skill Development Courses

Code	Course Name	L-T-P	C
MAL 106N	Basics of Computer Programming	3-0-2	4
MAL 301	Data Analysis	2-0-2	3
CHT208	Summer Internship	0-0-6	3
CHD311	Project	0-0-8	4
CHD312	Project	0-0-8	4
CHL 330	Creativity and Innovation Outcome	1	1

Note:

- Upto 20% of courses can be done through MOOC courses subject to department approval
- Open electives can be chosen from University list of Open Elective courses

Department of Applied Sciences

Master of Science Mathematics

Program Core

Code	Course Name	L-T-P	C
MAL501	Advanced Linear Algebra	3-0-2	4
MAL502	Functional Analysis	3-1-0	4
MAL503	Ordinary Differential Equations	3-1-0	4
MAL504	Partial Differential Equation	3-1-0	4
MAL515	Computing and Programming	3-0-2	4
MAL506	Numerical Analysis & Methods	3-0-2	4
MAL507	Complex Analysis	3-1-0	4
MAL508	Topology	3-1-0	4
MAL509	Statistical Inference	3-0-2	4
MAL512	Creativity and Innovation Outcome	0-0-1	1
MAL601	Discrete Mathematics & Automata Theory	3-1-0	4
MAL602	Mathematical Programming	3-1-0	4
MAL603	Methods of Applied Mathematics	3-1-0	4
MAL605	Fluid Mechanics	3-1-0	4
MAL614	Measure Theory	3-1-0	4
MAL616	Research Methodology	2-1-0	3

Skill Development Courses

Code	Course Name	L-T-P	C
MAD 609	Project 1	0-0-4	2
MAD 610	Project & Dissertation	0-0-8	4

Note:

a) Upto 20% of courses can be done through MOOC courses subject to department approval

b) Open electives can be chosen from University list of Open Elective courses

Program Electives

Code	Course Name	L-T-P	C
MAL510	Statistical Data Analysis	3-0-2	4
MAL518	Data Structures	3-0-2	4
MAL514	Database Management System	3-0-2	4
MAL516	Soft Computing	3-0-2	4
MAL607	Digital Image Processing	3-0-2	4
MAL609	Mathematical Modeling and Simulation	3-0-2	4
MAL611	Data Mining	3-0-2	4
MAL613	Fourier Analysis	3-0-2	4
MAL615	Regression Analysis	3-0-2	4
MAL617	Statistical Simulation	3-0-2	4
MAL619	Multivariate Analysis	3-0-2	4
MAL621	Field & Module Theory	3-0-2	4
MAL606	Optimization Techniques	3-0-2	4
MAL608	Time Series Analysis	3-0-2	4
MAL610	Computational Fluid Dynamics	3-0-2	4
MAL612	Non-linear Programming	3-0-2	4
MAL620	Selected Topics	3-0-2	4

Open Electives

Code	Course Name	L-T-P	C
	Open Elective I	3-0-0	3
	Open Elective II	3-0-0	3