American University in Central Asia
Department: Applied Mathematics and Informatics

CHECKLIST FOR ADMITS 2022

General Education Courses						
Course Name	**Course abbr.**	**Course ID**	**Credits**	**Semester**	**Prerequisites**	**Comments**
Academic Orientation program: August 22- September 2, 2022			**2***			**Outside of 240**
First Year Seminar I	FYS		4	1	none	
First Year Seminar II	FYS		4	2	FYS 1	
Introduction to Philosophy I (part of FYS)	FYS		2	1	none	
Introduction to Philosophy II (part of FYS)	FYS		2	2	Phil 1	
English Composition I	ECL		6	1	none	
English Composition II	ECL		6	2	ECL 1	
Kyrgyz Language and Literature I	KLL		4	3	none	
Kyrgyz Language and Literature II	KLL		4	4	KLL I	
Russian Language I	RUS		2	3	none	
Russian Language II	RUS		2	4	RUS 1	
History of Kyrgyzstan	HIST		4	4	none	
Geography of Kyrgyzstan	GEO		2	4	none	
Manas Studies			2	4	none	
Natural Sciences/Second Year Seminar** *Physics. Computer Modeling.*	MAT-202.1		6	2	Lin. Algebra	
Mathematics and Quantitative reasoning -*Linear Algebra & Analytic Geometry for AMI/SFW* -*Mathematical Analysis I for AMI/SFW* -*Mathematical Analysis II*	MAT-131.2 MAT-233.2 MAT-316.2	3828 3855	18		None Lin. Algebra *Mathematical Analysis I*	
Arts/Second Year Seminar**	ART		12			
Humanities/Second Year Seminar** *Modern Foreign Languages, History, Literature, Culture from outside the student's major*	SYS/HUM		12			
Social Sciences/Second Year Seminar** *Psy, Soc, ICP, Econ, IBL, Anth, ES. From outside the student's major*	SYS/SS, SOC, PSY, ES etc.		12			
Sports	SPO		0		none	400 hours
Total GenEd credits			104 [2] credits			

* Credits earned for the Academic Orientation program are not included into 240 credits for graduation.

**All students in their 2nd year must take one Second Year Seminar. This seminar substitutes for one required 6-credit course in either Humanities, Social Sciences, Arts or Natural Science.

One 6-credit course in Major requirements could be counted towards General Education requirements. ** Credits earned for the Academic Orientation program are not included into 240 credits for graduation.

**All students in their 2nd year must take one Second Year Seminar. This seminar substitutes for one required 6-credit

course in either Humanities, Social Sciences, Arts or Natural Science.
***One 6-credit course in Major requirements could be counted towards General Education requirements.

Major Requirements

Required Courses (72 cr)

Course Name	Course abbr.	Course ID	Credits	Semester	Prerequisites	Comments
Discrete Mathematics and Mathematical Logic I	COM-227		6	1	none	
Discrete Mathematics and Mathematical Logic II	COM-228		6	2	COM-227	
The Theory of Probabilities and Mathematical Statistics	MAT-307		6	4	MAT-131	
Functional Analysis	MAT-341		6	5	MAT-316.2, MAT-326	
Ordinary Differential Equations	MAT-332		6	3	MAT-233.2	
Equations of Mathematical Physics	MAT-360		6	6	MAT-316.2 MAT-332	
Numerical Methods (of Algebra, Analysis and ODE)	MAT-407		6	4	MAT-233.2 COM-118 MAT-332-desirable	
Numerical Methods for Equations of Mathematical Physics	MAT-410		6	7	MAT-407, MAT-360	
Introduction to programming	COM-122		6	3	none	
Research Methods in Applied Mathematics	MAT-370		6	6	MAT-131.2	
Internship I (Educational Tasks)	MAT-380		3	7	none	
Internship II (Research Project)	MAT-479		3	7	none	
Senior project preparation I	MAT-480		3	7	MAT-370	
Senior project preparation II	MAT-481		3	8	MAT-480	

Elective Courses (need to take 24 cr)

Course Name	Course abbr.	Course ID	Credits	Semester	Prerequisites	Comments
Complex Variables	MAT-326		6		MAT-316.2	
Optimization Methods	MAT-435		6		MAT-233.2	
Object Oriented Programming	COM-119		6		COM-118	
Computer Architecture	COM-410.1		6		COM-223.1	
Operating Systems	COM-341.1		6		COM-410.1	
Database	COM-213		6		COM-119	
Computer Graphics	COM-391		6		COM-223.1	
Graphic Design I or II	JMC/COM/TCMA-301		6		FYS-216	
Quantitative Decision Making	BUS/MAT-366		6		MAT-131.2	
Game Theory	MAT-317		6		MAT-233 /MAT-131	
Actuarial Mathematics I	BUS/MAT-367		6		MAT-307	
Actuarial Mathematics II	BUS/MAT-368		6		BUS/MAT-367	
Programming R: Software for Statistical Computing (eng.)	COM-211		6		MAT-307	
Maple Programming	MAT-239		6		MAT-131.2	
Maple: Contemporary approach to Mathematics studies	MAT-238		6		MAT-131.2	

Courses for the education profile "Mathematical Modeling in Natural and Social Sciences"

Mathematical Modeling in Geophysics	MAT-420		6		MAT-407, MAT-316.2, MAT-410	Preferable
Mathematical Modeling in Economics	MAT/ECO- 333		6		MAT-233.2	

Electives - 40 cr (at least 18cr outside the major and 22cr can be taken from the major)

Internship			9			outside of 240
State attestation			6			outside of 240
Total Number of Credits			**255**			

Recommended order of study for 2022 admits

Academic Orientation Program [2 credits]			
1st semester (30 credits)		**2nd semester (30 credits)**	
First Year Seminar I	4	First Year Seminar II	4
Philosophy I (part of FYS)	2	Philosophy II (part of FYS)	2
Composition I	6	Composition II	6
Sport	0	Sport	0
Discrete Mathematics and Mathematical Logic I	6	Discrete Mathematics and Mathematical Logic II	6
Linear Algebra and Analytic Geometry	6	Humanities / Social Science/ Arts	6
Physics. Computer Modeling	6	Mathematical Analysis I	6
3rd semester (30 credits)		**4th semester (32 credits)**	
Introduction to programming	6	AMI Elective	6
Ordinary Differential Equations	6	Numerical Methods	6
Mathematical Analysis II	6	The Theory of Probabilities and Mathematical Statistics	6
Kyrgyz language and literature I	4	Kyrgyz language and literature II	4
Russian Language I	2	History of Kyrgyzstan	4
Second year seminar (SS/ART/HUM)	6	Geography of Kyrgyzstan	2
Sport	0	Russian Language II	2
		Manas Studies	2
5th semester (30 credits)		**6th semester (32 credits)**	
Functional Analysis	6	Equations of Mathematical Physics	6
AMI Elective	6	Research Methods in Applied Math	6
AMI Elective	6	Elective	6
AMI Elective	6	Elective	6
Elective	6	Humanities / Social Science/ Arts	6
SUMMER			
Internship	9		
7th semester (33 credits)		**8th semester (33 credits)**	

Senior project preparation I	3	Senior project preparation II	3
Numerical Methods for Equations of Mathematical Physics	6	Elective (Recommended: Mathematical Modeling in Geophysics)	6
Elective	6	Elective (Recommended: Mathematical Modeling in Economics)	6
Internship I and Internship II	3+3	Elective	6
Elective	6	Humanities / Social Science/ Arts	6
Humanities / Social Science/ Arts	6	Humanities / Social Science/ Arts	6

Graduation requirements:

1. Earn at least 240 credits (+credit hours earned for program internships)
    a. Complete all General Education requirements;
    b. Complete all requirements for at least one major;
    c. Earn no more than 102 credits of introductory (100-level) courses;
    d. Complete at least 18 elective credits outside of a student's major and General Education program;
    e. Complete the required number of internship credits (the number of credits is determined by each department);
    f. Pass all state graduation examinations;
    g. Successfully complete and defend a senior thesis/project;
    h. Receive no "F" or "N/p" grades in the final semester;
    To earn an overall GPA of at least 2.0.