American University in Central Asia
Department: Applied Mathematics and Informatics

CHECKLIST FOR ADMITS 2025

General Education Courses						
Course Name	**Course abbr.**	**Course ID**	**Credits**	**Semester**	**Prerequisites**	**Comments**
Academic Orientation program: August 11- 21, 2025			**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	1	none	
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 3365	18	1 2 3	-None -MAT 131.2 3828 -MAT 233.2 3855	
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			2 credits outside of 240

***** 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 on Major (72 cr)

Course Name	Course abbr.	Course ID	Credits	Semester	Prerequisites	Comments
Discrete Mathematics and Mathematical Logic I	COM-227	3129	6	1	none	
Discrete Mathematics and Mathematical Logic II	COM-228	3130	6	2	none	
The Theory of Probabilities and Mathematical Statistics	MAT-307	3215	6	4	MAT-131.2 3828	
Functional Analysis	MAT-341	3724	6	5	MAT-233.2 3855	
Ordinary Differential Equations	MAT-332	3700	6	3	MAT-233.2 3855	
Equations of Mathematical Physics	MAT-360	3725	6	6	MAT-332 3700	
Numerical Methods	MAT-407	3214	6	4	MAT-233.2 3855, COM-118/122	
Numerical Methods for Equations of Mathematical Physics	MAT-410	3968	6	7	MAT-407 3214, MAT-360 3725	
Introduction to programming	COM-122		6	3	none	
Research Methods in Applied Mathematics	MAT-370	3864	6	6	MAT-316.2 3365	
Educational Internship	MAT-380	4121	3	7	none	
Internship: Work experience	MAT-479	4120	3	7	none	
Senior project preparation I	MAT-480	3966	3	7	MAT-370 3864	
Senior project preparation II	MAT-481	3967	3	8	MAT-480 3966	

Elective Courses on Major (48 cr)

Course Name	Course abbr.	Course ID	Credits	Semester	Prerequisites	Comments
Complex Variables	MAT-326	3699	6	5	MAT-233.2 3855	
Optimization Methods	MAT-435	3726	6	5	MAT-233.2 3855	
Object Oriented Programming	COM-119	4357	6	4	COM-118/122	
Computer Architecture	COM-410.1	3268	6	6	COM-223.1 3114 (pre-registration)	
Operating Systems	COM-341.1	3325	6	7	COM-410.1 3268 (pre-registration)	
Database	COM-213	4773	6	5	COM-119 4357	
Courses for the education profile "Mathematical Modeling in Natural and Social Sciences"						
Mathematical Modeling in Geophysics	MAT-420	4118	6	7 or 8	MAT-410 3968	
Mathematical Modeling in Economics	MAT/ECO- 333	3701	6	7 or 8	MAT-233.2 3855	

Electives (16 cr)

Computer Graphics	COM-391	4954	6		COM-223.1 3114 (pre-registration)	
Quantitative Decision Making	BUS/MAT-366	3963	6		MAT-307 3215	
Game Theory	MAT/ECO-317	3453	6		MAT-233.2 3855	
Actuarial Mathematics I	BUS/MAT-367	3964	6		MAT-307 3215	
Actuarial Mathematics II	BUS/MAT-368	4177	6		BUS/MAT-367	
Programming R: Software for Statistical Computing (eng.)	COM-211	3863	6		MAT-307 3215	
Maple Programming	MAT-239	4586	6		MAT-131.2 3828	

Maple: Contemporary approach to Mathematics studies	MAT-238	4588	6		MAT-131.2 3828	
Data Science	COM/ MAT 295	4520	6		COM 117/ MAT 233.2/ COM 119	
Internship			9			outside of 240
State attestation			6			outside of 240
Total Number of Credits			**240+17**			

Recommended order of study for 2025 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	Humanities / Social Science/ Arts	6
Discrete Mathematics and Mathematical Logic I	6	Sport	0
Linear Algebra and Analytic Geometry	6	Discrete Mathematics and Mathematical Logic II	6
Physics. Computer Modeling	6	Mathematical Analysis I	6
3rd semester (30 credits)		**4th semester (32 credits)**	
Introduction to programming	6	Object Oriented Programming	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 (30 credits)**	
Functional Analysis	6	Equations of Mathematical Physics	6
Database	6	Research Methods in Applied Math	6
Optimization Methods	6	Computer Architecture	6
Complex Variables	6	Elective (*Recommended Computer Graphics*)	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	Mathematical Modeling in Geophysics	6
Mathematical Modeling in Economics	6	Elective	6
Internship I and Internship II	3+3	Elective	6
Operating Systems	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 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.