

Record of: Áron Dénes Hartvig Matriculation:
 Name at birth: Áron Dénes Hartvig
 Mother's name: Katalin Klinyecz
 ID number: 1902242 FIR ID: 76098101162 Date of birth: 15 Jun, 1996
 Status: Graduated Date issued: 11 May, 2021

Teaching Site: Budapest / Vienna
 Department of Economics and Business
 Degree: Master of Science in Finance (132)
 Duration: 1 year(s)

Program is Registered by the Hungarian Educational Authority as a postgraduate specialization program (non-degree program) of Közép-európai Egyetem (Institution ID: F127861)
 Registered with the Board of Regents of the New York State Education Department (US)

2019/20 Fall Term

Course Code/Title	Professor	Grade	Point	CEU Credits	ECTS Credits
ECBS5075 Maximizing Your Future	Anna Kaposvári	P	-	0	0
ECBS5143 Data Analysis 2: Finding Patterns in R and VBA (Finance)	Tibor Vörös	A	4.00	2	4
ECBS5151 Economic Foundations	Paul Lacourbe	A	4.00	2	4
ECBS5157 Financial Management (for full-time)	Péter Gábor Szilágyi	A	4.00	2	4
ECBS5159 Financial Reporting and Control	Laura Ipacs	A	4.00	2	4
ECBS5161 Investments 1: Trading and Portfolio Theory	Ádám Gábor Zawadowski	A	4.00	2	4
ECBS5219 Coding 2: Python Programming, Visualization and Text Analysis (Finance)	Arieda Muco	A-	3.67	2	4

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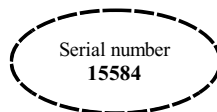
2019/20 Fall Term

Course Code/Title	Professor	Grade	Point	CEU Credits	ECTS Credits
ECBS5316 Mathematics and Advanced Excel Pre-Session for Finance	-	P	-	0	0
ECBS5321 Data Visualization 1: Introduction to Tableau (Finance)	Bence Arató	A-	3.67	1	2
***** NO CLASS ENTRIES BELOW *****					
Term CEU ECTS Credits:	Term CEU ECTS GPA:	Avg. Class CEU ECTS GPA:		Class size:	
13 26	3.92 3.92	3.70 3.70		30	

2019/20 Winter Term

Course Code/Title	Professor	Grade	Point	CEU Credits	ECTS Credits
ECBS5064 Fixed Income Analysis	Péter Gábor Szilágyi	A	4.00	2	4
ECBS5119 Entrepreneurial Finance	Baranyai Gabor	A	4.00	2	4
ECBS5129 Coding for Finance 3: Python for Finance	-	P	-	0	0

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 Eva Ban
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EVA BAN



TRANSCRIPT KEY
CENTRAL EUROPEAN UNIVERSITY

Recognition

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Authentication of the Academic Record

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IRES	Department of International Relations and European Studies	University of the State of New York, USA
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LANG	Center for Academic Writing	-
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RAP	Roma Access Programs	-
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SOPP	School of Public Policy	University of the State of New York, USA

Academic Standing	GPA range	Description
Distinction	3.67 - 4.00	High performance
Merit	3.33 - 3.66	A very good performance
Pass	2.66 - 3.32	Performance that meets general CEU standards
Unsatisfactory Standing*	less than 2.66	A student whose record is below minimum CEU standards or the student's department may, at the end of a given term, be advised by the Pro-Rector, upon recommendation of the relevant department, that further registration will not be permitted, thus terminating the degree candidacy.

*A student may be permitted to register subject to specific academic conditions which, if not fulfilled by the date specified, will result in the termination of candidacy. Except for the Business School undergraduate program: min. passing GPA is 2.25

Translation of grade point average to Hungarian diploma qualifications

Grade point average	Translation in the Hungarian system
4.00 - 3.67	Jeles DISTINCTION
3.66 – 3.33	Jó MERIT
3.32 – 3.00	Közepes SATISFACTORY
2.99 – 2.66	Elégséges PASS
2.65 and below (2.65 és alatta)	Degree not issued (diplomát nem állítottunk ki)

CEU GRADING SYSTEM

Grade	Name	Point	Credit
A	Outstanding	4.00	yes
A-	Excellent	3.67	yes
B+	Good	3.33	yes
B	Fair	3.00	yes
B-	Satisfactory	2.67	yes
C+	Minimum Pass	2.33	yes
F	Fail	0.00	no

		Point	Credit
SPECIAL GRADES			
P	Pass		yes
FL	Fail		no
RP	Retake	2.33	yes
EX	Exemption	dept.	dept.
INC	Incomplete	0.00	no
AF	Administrative Fail	0.00	no
CF	Conditional Fail	(0.00)	(no)
DF	Deferred	(0.00)	(no)

GRADES NEITHER INCLUDED IN THE GPA NOR CARRYING CREDIT

AUD	Audit		
WP	Withdraw/Pass (late drop)		
WF	Withdraw/Fail (late drop)		
WN	Withdraw/No grade		
W	Withdraw		
IP	In Progress		
CNT	Continued		
VIS	Visitor		

GRADE POSTFIXES		in GPA	Credit
Vis	Registered for Audit	no	
R	Repeated Course	yes	yes
H	Honors Course	yes	yes
X	Extra Credit	yes	yes
I	Independent Study	yes	yes
N	Non-Degree Credit	no	no
G	Degree Credit	no	yes
T	Transfer Credit	yes	yes

ECTS GRADING SCALE

Grade	Students**	Definition	At CEU
A	10%	Outstanding performance with minor errors	A
B	25%	Above the average standard but with some errors	A-/B+
C	30%	Generally sound work with a number of notable Errors	B+/B
D	25%	Fair but with significant shortcomings	B/B-
E	10%	Performance meets the minimum criteria	C+
FX	-	Some more work required before the credit can be awarded	INC
F	-	Considerable further work is required	F

**Percentage of successful students normally achieving the grade

		Point	Credit	Description
SPECIAL GRADES				
P	Pass		yes	Pass/Fail grading option which represents C+ or better. The official grade record is P, no equivalent letter grade will be released.
FL	Fail		no	Pass/Fail grading option which represents C or worse. The official grade record is FL.
RP	Retake	2.33	yes	Retake examinations can be provided upon the authorization of the head of department or program to those students who have failed a course, except for their final examination. Retake examination is graded on an RP/FL basis, where RP constitutes a grade worth the minimum passing grade C+ with 2.33 points for the course.
EX	Exemption	dept.	dept.	Exemption based on equivalent qualifications or experience. Eligibility is to be determined by the appropriate department or program
INC	Incomplete	0.00	no	Incomplete may be assigned to a student who has not completed all course requirements, if the work completed is of pass quality
AF	Administrative Fail	0.00	no	Assigned for failure to either drop or complete course
CF	Conditional Fail	(0.00)	(no)	Assigned for failure to either drop or complete course
DF	Deferred	(0.00)	(no)	Assigned to a student who is prevented from completing a course within the prescribed amount of time by circumstances beyond the student's control. Regarded as F if the course work is not completed in six weeks after the start of the next term.

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CNT	Continued		
VIS	Visitor		

GRADE POSTFIXES		in GPA	Credit
Vis	Registered for Audit	no	
R	Repeated Course	yes	yes
H	Honors Course	yes	yes
X	Extra Credit	yes	yes
I	Independent Study	yes	yes
N	Non-Degree Credit	no	no
G	Degree Credit	no	yes
T	Transfer Credit	yes	yes

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GRADES NEITHER INCLUDED IN THE GPA NOR CARRYING CREDIT				
AUD	Audit			Assigned for failure to either drop or complete course
WP	Withdraw/Pass (late drop)			Withdrawal while passing. Requirements are not completely fulfilled, but students does not need to repeat the course. Used in exceptional cases (e.g. health matters)
WF	Withdraw/Fail (late drop)			Withdrawal while failing - similar to INC in the sense that not all course requirements are completed, but the grade is not included in the GPA calculation. Can be used only to grade non-mandatory courses.
WN	Withdraw/No grade			Withdrawal with no grade when late drop occurs and neither WP nor WF can be assigned
W	Withdraw			Assigned for unsatisfactory attendance or withdrawal from the audited course
IP	In Progress			Assigned if the student received permission for late submission of work for the course. Changes to F if the final course work is not completed by the deadline.
CNT	Continued			Continuing course or thesis (for courses that last more than one semester)
VIS	Visitor			Assigned to a non-CEU student for the audited course
GRADE POSTFIXES				
Vis	Registered for Audit	no		Assigned to a non-CEU student for the audited course
R	Repeated Course	yes	yes	Entire course is repeated upon department's permission. Only the most recent grade point and credit are included in the cumulative GPA and cumulative credits respectively.
H	Honors Course	yes	yes	High level course only for outstanding students
X	Extra Credit	yes	yes	Designates extra credit
I	Independent Study	yes	yes	Denotes extra credit taken by independent study
N	Non-Degree Credit	no	no	Credits do not count toward degree
G	Degree Credit	no	yes	Counts as a degree credit but is not in the cumulative GPA
T	Transfer Credit	yes	yes	Counts as a degree credit but is not in the cumulative GPA

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2019/20 Winter Term

Course Code/Title	Professor	Grade	Point	CEU Credits	ECTS Credits
ECBS5181 Financial Econometrics	Soomin Lee	A	4.00	2	4
ECBS5184 Investments 2: Asset Pricing	Ádám Gábor Zawadowski	A-	3.67	2	4
ECBS5214 Finance Use Case Seminars	Péter Gábor Szilágyi	P	-	0	0
ECBS5335 Data Analysis 3 for Finance: Machine Learning	Zoltán Papp	A	4.00	2	4

2019/20 Spring Term

Course Code/Title	Professor	Grade	Point	CEU Credits	ECTS Credits
ECBS5195 Capstone Project Writing (Finance)	Péter Gábor Szilágyi	A	4.00	4	8
ECBS5214 Finance Use Case Seminars	Péter Gábor Szilágyi	P	-	1	2
ECBS5230 Final Exam for Finance (Date: 2020 Jun 18)	Péter Gábor Szilágyi	P	-	0	0

***** NO CLASS ENTRIES BELOW *****

Term CEU | ECTS Credits: 10 | 20 Term CEU | ECTS GPA: 3.93* | 3.93* Avg. Class CEU | ECTS GPA: 3.78* | 3.78* Class size: 30

* In the Winter and Spring semesters of the Academic year 2019/2020, CEU has moved to an optional Pass/fail grading scheme, which may impact students' GPA and the overall Class GPA.

2019/20 Spring Term

Course Code/Title	Professor	Grade	Point	CEU Credits	ECTS Credits
ECBS5093 Financial Trading Design and Technology	Ferenc Tamas Meszaros	P	-	2	4
ECBS5100 Regulatory and Policy Environment	Maciej Kisilowski	P	-	2	4

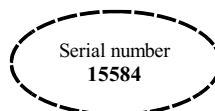
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Eva Ban

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F	Fail	0.00	no

		Point	Credit
SPECIAL GRADES			
P	Pass		yes
FL	Fail		no
RP	Retake	2.33	yes
EX	Exemption	dept.	dept.
INC	Incomplete	0.00	no
AF	Administrative Fail	0.00	no
CF	Conditional Fail	(0.00)	(no)
DF	Deferred	(0.00)	(no)

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G	Degree Credit	no	yes
T	Transfer Credit	yes	yes

		Point	Credit	Description
SPECIAL GRADES				
P	Pass		yes	Pass/Fail grading option which represents C+ or better. The official grade record is P, no equivalent letter grade will be released.
FL	Fail		no	Pass/Fail grading option which represents C or worse. The official grade record is FL.
RP	Retake	2.33	yes	Retake examinations can be provided upon the authorization of the head of department or program to those students who have failed a course, except for their final examination. Retake examination is graded on an RP/FL basis, where RP constitutes a grade worth the minimum passing grade C+ with 2.33 points for the course.
EX	Exemption	dept.	dept.	Exemption based on equivalent qualifications or experience. Eligibility is to be determined by the appropriate department or program
INC	Incomplete	0.00	no	Incomplete may be assigned to a student who has not completed all course requirements, if the work completed is of pass quality
AF	Administrative Fail	0.00	no	Assigned for failure to either drop or complete course
CF	Conditional Fail	(0.00)	(no)	Assigned for failure to either drop or complete course
DF	Deferred	(0.00)	(no)	Assigned to a student who is prevented from completing a course within the prescribed amount of time by circumstances beyond the student's control. Regarded as F if the course work is not completed in six weeks after the start of the next term.

GRADES NEITHER INCLUDED IN THE GPA NOR CARRYING CREDIT

AUD	Audit		
WP	Withdraw/Pass (late drop)		
WF	Withdraw/Fail (late drop)		
WN	Withdraw/No grade		
W	Withdraw		
IP	In Progress		
CNT	Continued		
VIS	Visitor		

		in GPA	Credit
Grade Postfixes			
Vis	Registered for Audit	no	
R	Repeated Course	yes	yes
H	Honors Course	yes	yes
X	Extra Credit	yes	yes
I	Independent Study	yes	yes
N	Non-Degree Credit	no	no
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N	Non-Degree Credit	no	no
G	Degree Credit	no	yes
T	Transfer Credit	yes	yes

		Point	Credit	Description
SPECIAL GRADES	Pass/Fail grading option which represents C+ or better. The official grade record is P, and no equivalent letter grade will be released.	3	3	
	Pass/Fail grading option which represents C or worse. The official grade record is FL.	3	3	
	Retake examinations can be provided upon the authorization of the head of the department or program to those students who have failed a course, except for their final examination. Retake examination is graded on an RP/FL basis, where RP constitutes a grade worth the minimum passing grade C+ with 2.33 points for the course.	3	3	
	Exception based on equivalent qualifications or experience. Eligibility is to be determined by the appropriate department or program	3	3	
	Incomplete may be assigned to a student who has not completed all course requirements, if the work completed is of pass quality	3	3	
	Assigned for failure to either drop or complete course	3	3	
	Assigned for failure to either drop or complete course	3	3	
	Assigned to a student who is prevented from completing a course within the prescribed amount of time by circumstances beyond the student's control. Regarded as F if the course work is not completed in six weeks after the start of the next term.	3	3	
	C CREDIT			
	Assigned for failure to either drop or complete course	3	3	
Withdrawal while passing. Requirements are not completely fulfilled, but students does not need to repeat the course. Used in exceptional cases (e.g. health matters)	3	3		
Withdrawal while failing - similar to INC in the sense that not all course requirements are completed, but the grade is not included in the GPA calculation. Can be used only for grade non-mandatory courses.	3	3		
Withdrawal with no grade when late drop occurs and neither WP nor WF can be assigned	3	3		
Assigned for unsatisfactory attendance or withdrawal from the audited course	3	3		
Assigned if the student received permission for late submission of work for the course. Changes to F if the final course work is not completed by the deadline.	3	3		
Continuing course or thesis (for courses that last more than one semester)	3	3		
Assigned to a non-CEU student for the audited course	3	3		

Record of: Áron Dénes Hartvig Matriculation:
Name at birth: Áron Dénes Hartvig
Mother's name: Katalin Klinyecz
ID number: 1902242 FIR ID: 76098101162 Date of birth: 15 Jun, 1996
Status: Graduated Date issued: 11 May, 2021

Teaching Site: Budapest / Vienna
Department of Economics and Business
Degree: Master of Science in Finance (132)
Duration: 1 year(s)

Program is Registered by the Hungarian Educational Authority as a postgraduate specialization program (non-degree program) of Közép-európai Egyetem (Institution ID: F127861)
Registered with the Board of Regents of the New York State Education Department (US)

Title: Default Prediction with Knockout Model			
Advisor(s): Zoltán Papp,			
Capstone Project:			
CEU Credits	4.00	GPAWt	4.00
ECTS Credits	8		
Grade	A	Point	4.00
CEU ECTS Credits:	Cumulative CEU ECTS GPA:	Avg. Class CEU ECTS GPA:	Class Size:
36 72	3.95 3.95	3.75 3.75	28

According to paragraph 51 (2) in the 2011th year CCIV law on Hungarian higher education, the student is exempt from meeting the language exam requirements necessary for a higher education degree.
The student possesses the prior degrees required for admission into the program.

Serial number
15584

DocuSigned by:
Eva Ban
DC82772BAB85412...

EVA BAN



TRANSCRIPT KEY
CENTRAL EUROPEAN UNIVERSITY

Recognition

Central European University (CEU) has been issued an absolute charter by the Board of Regents of the New York State Education Department (US) which recognizes CEU as a higher educational institution chartered (incorporated) in New York. This gives CEU the right to issue its own diplomas. CEU is a graduate school offering MA, LL.M, MS, MPhil, PhD and SJD degree programs.. CEU is accredited by the Middle States Commission on Higher Education: 3624 Market Street, Philadelphia, PA 19104, United States. English is the official language of instruction and examination at CEU. Information on degree programs of Közép-európai Egyetem: <http://www.ceu.edu/academics/degrees/hungarian-accredited>

Credit Hour Explanation

One credit hour at CEU is equivalent to 600 minutes except for the Dept. of Legal Studies where one credit is equal to 700 min.

Grade Point Average

Semester/module and cumulative grade point averages (GPA) are calculated by weighing grade points by the corresponding credit numbers.

Authentication of the Academic Record

Each official transcript bears the CEU raised seal and the Registrar's signature.

Abbrev	Departments, programs and academic service units	Degree Program Registration**
BUSI	CEU Business School	University of the State of New York, USA
CHSP	Cultural Heritage Studies Program	University of the State of New York, USA
COMP	Computer and Statistics Center	-
COGN	Department of Cognitive Science	University of the State of New York, USA
CPS/DPP	Department of Public Policy	University of the State of New York, USA
CTAL	Center for Teaching and Learning	-
DNDS	Department of Network and Data Science	-
DSPS	Doctoral School of Political Science, Public Policy and Int. Relations	University of the State of New York, USA
ECBS	Department of Economics and Business	University of the State of New York, USA
ECON	Department of Economics	University of the State of New York, USA
ENVS	Department of Environmental Sciences and Policy	University of the State of New York, USA
GENS	Department of Gender Studies	University of the State of New York, USA
HIME	Joint MA in Historical Studies (HIST and MEDS)	University of the State of New York, USA
HIST	Department of History	University of the State of New York, USA
HUMR	Human Rights Program	University of the State of New York, USA
IRES	Department of International Relations and European Studies	University of the State of New York, USA
INTR	Department of International Relations	University of the State of New York, USA
LANG	Center for Academic Writing	-
LEGS	Department of Legal Studies	University of the State of New York, USA
MATH	Department of Mathematics and its Applications	University of the State of New York, USA
MEDS	Department of Medieval Studies	University of the State of New York, USA
NATI	Nationalism Studies Program	University of the State of New York, USA
PHIL	Department of Philosophy	University of the State of New York, USA
POLS	Department of Political Science	University of the State of New York, USA
RAP	Roma Access Programs	-
RSP	Romani Studies Program	-
SEES	Southeast European Studies Program	University of the State of New York, USA
SLTG	Source Language Teaching Group	University of the State of New York, USA
SOCI	Department of Sociology	MA is registered with the University of Lancaster, UK PhD is registered with Polish Academy of Sciences
SOCL	Department of Sociology and Social Anthropology	University of the State of New York, USA
SOPP	School of Public Policy	University of the State of New York, USA

Academic Standing	GPA range	Description
Distinction	3.67 - 4.00	High performance
Merit	3.33 - 3.66	A very good performance
Pass	2.66 - 3.32	Performance that meets general CEU standards
Unsatisfactory Standing*	less than 2.66	A student whose record is below minimum CEU standards or the student's department may, at the end of a given term, be advised by the Pro-Rector, upon recommendation of the relevant department, that further registration will not be permitted, thus terminating the degree candidacy.

*A student may be permitted to register subject to specific academic conditions which, if not fulfilled by the date specified, will result in the termination of candidacy. Except for the Business School undergraduate program: min. passing GPA is 2.25

Translation of grade point average to Hungarian diploma qualifications

Grade point average	Translation in the Hungarian system
4.00 - 3.67	Jeles DISTINCTION
3.66 – 3.33	Jó MERIT
3.32 – 3.00	Közepes SATISFACTORY
2.99 – 2.66	Elégséges PASS
2.65 and below (2.65 és alatta)	Degree not issued (diplomát nem állítunk ki)

CEU GRADING SYSTEM

Grade	Name	Point	Credit
A	Outstanding	4.00	yes
A-	Excellent	3.67	yes
B+	Good	3.33	yes
B	Fair	3.00	yes
B-	Satisfactory	2.67	yes
C+	Minimum Pass	2.33	yes
F	Fail	0.00	no

		Point	Credit
SPECIAL GRADES			
P	Pass		yes
FL	Fail		no
RP	Retake	2.33	yes
EX	Exemption	dept.	dept.
INC	Incomplete	0.00	no
AF	Administrative Fail	0.00	no
CF	Conditional Fail	(0.00)	(no)
DF	Deferred	(0.00)	(no)

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ECTS GRADING SCALE

Grade	Students**	Definition	At CEU
A	10%	Outstanding performance with minor errors	A
B	25%	Above the average standard but with some errors	A-/B+
C	30%	Generally sound work with a number of notable Errors	B+/B
D	25%	Fair but with significant shortcomings	B-/B-
E	10%	Performance meets the minimum criteria	C+
FX	-	Some more work required before the credit can be awarded	INC
F	-	Considerable further work is required	F
**Percentage of successful students normally achieving the grade			

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