

NTHU CTM and ASU W.P.Carey School of Business

Plan of Study for 3+1+1 Program

EXHIBIT A

Curriculum of Plan of Study (POS) 3 + 1 + 1 Format				
National Tsing Hua University (NTHU) College of Technology Management Bachelor of Arts in Economics [Total credit hours 108]			ARIZONA STATE UNIVERSITY (ASU) W. P. Carey School of Business Master of Accountancy (MAcc) in Accountancy and Data Analytics [Total credit hours 54 at ASU]	
Undergraduate Courses:			Undergraduate Courses:	Graduate Matriculated Courses:
YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
SEMESTER 1 & 2	SEMESTER 3 & 4	SEMESTER 5 & 6	SEMESTER 1 & 2	SEMESTER 1 & 2
Students are expected to complete 108 credit hours within Year 1-3 at NTHU. For detailed description of the plan, please see Exhibit L.			Students are expected to complete 8 courses/24 credit hours (undergraduate) as part of their first year at ASU. <ul style="list-style-type: none"> • ECN 304 Classical to Modern Economic Thought • ECN 410 Applied Regression Analysis and Forecasting • ECN 438 International Monetary Economics • ECN 441 Public Economics • ECN 453 Industrial Organization and Competition Policy • ECN 470 Mathematical Economics • ECN 345 Survey of Environmental and Resource Economics • ECN 360 Economic Development • ECN 416 Game Theory and Economic Behavior • ECN 421 Labor Economics • ECN 423 Economics of Education • ECN 436 International Trade Theory • ECN 445 Environmental Economics 	The MAcc curriculum is two semesters quarter-based courses: <ul style="list-style-type: none"> • ACC 586 Shareholder Value Creation and Financial Statement Analysis (3) • ACC 588 Professional Accounting Research (3) • ACC 520 Statistics and Coding for Accounting Analytics (3) • ACC 510 Internal Controls Audit and Fraud Prevention & Detection (3) • ACC 521 Accounting Analytics Concepts and Tools (3) • ACC 522 Innovations with Auditing Technologies (3) (Students choose 3 elective courses at 3 credit hours each) <ul style="list-style-type: none"> • ACC 591 Professional Responsibilities I, II and III (3) • ACC 575 Family Financial, Tax and Wealth Transfer Planning (3) • ACC 591 Critical Judgements in Accounting (3) • ACC 511 Accounting for Income Taxes (3) • ACC 581 ESG Reporting and Ethics (3) • ACC 585 Performance Measurement and Advanced Managerial Accounting (3) • ACC 513 Advanced Financial Accounting (3) Culminating Experience <ul style="list-style-type: none"> • ACC 512 Advanced Auditing (3)
Total Credits: 36	Total Credits: 36	Total Credits: 36	Total Credits: 24	Total Credits: 30

Notes: 400 level completed at ASU must be approved by the partner university since students will be receiving their bachelor degree from their home institution. 500 level courses will be used towards ASU's graduate programs.

EXHIBIT B

Curriculum of Plan of Study (POS) 3 + 1 + 1 Format				
National Tsing Hua University (NTHU) College of Technology Management Bachelor of Arts in Economics [Total credit hours 108]			ARIZONA STATE UNIVERSITY (ASU) W. P. Carey School of Business Master of Science in Business Analytics [Total credit hours 54 at ASU]	
Undergraduate Courses:			Undergraduate Courses:	Graduate Matriculated Courses:
YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
SEMESTER 1 & 2	SEMESTER 3 & 4	SEMESTER 5 & 6	SEMESTER 1 & 2	SEMESTER 1 & 2
<p>Students are expected to complete 108 credit hours within Year 1-3 at NTHU.</p> <p>For detailed description of the plan, please see Exhibit L.</p>			<p>Students are expected to complete 8 courses/24 credit hours (undergraduate) as part of their first year at ASU.</p> <ul style="list-style-type: none"> • ECN 304 Classical to Modern Economic Thought • ECN 410 Applied Regression Analysis and Forecasting • ECN 438 International Monetary Economics • ECN 441 Public Economics • ECN 453 Industrial Organization and Competition Policy • ECN 470 Mathematical Economics • ECN 345 Survey of Environmental and Resource Economics • ECN 360 Economic Development • ECN 416 Game Theory and Economic Behavior • ECN 421 Labor Economics • ECN 423 Economics of Education • ECN 436 International Trade Theory • ECN 445 Environmental Economics 	<p>The MS curriculum is two semesters with quarter and semester-length courses:</p> <ul style="list-style-type: none"> • CIS 508 Machine Learning in Business (3) • SCM 517 Business Process Analytics (3) • CIS 505 Enterprise Data Analytics (3) • CIS 509 Analytics for Unstructured Data (3) • CIS 515 AI and Data Analytics Strategy (3) • SCM 516 Descriptive & Predictive Analytics (3) • SCM 518 Analytical Decision Modeling (3) • SCM 519 Quantitative Risk Management (3) • MKT 562 Advanced Analytics for Marketing Decisions (3) <p>Culminating Experience</p> <ul style="list-style-type: none"> • CIS 593 Applied Project (1.5) • SCM 593 Topic: Corporate Project II (1.5) <p>Note: For students without Python experience from undergraduate degree, recommended to take CIS 591 Topic: Python for Data Analysis prior to start of MS program</p>
Total Credits: 36	Total Credits: 36	Total Credits: 36	Total Credits: 24	Total Credits: 30
Notes: 400 level completed at ASU must be approved by the partner university since students will be receiving their bachelor degree from their home institution. 500 level courses will be used towards ASU's graduate programs.				

EXHIBIT C

Curriculum of Plan of Study (POS) 3 + 1 + 1 Format					
National Tsing Hua University (NTHU) College of Technology Management Bachelor of Arts in Economics [Total credit hours108]			ARIZONA STATE UNIVERSITY (ASU) W. P. Carey School of Business Master of Science in Finance [Total credit hours 56 at ASU]		
Undergraduate Courses:			Undergraduate Courses:	Graduate Matriculated Courses:	
YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	
SEMESTER 1 & 2	SEMESTER 3 & 4	SEMESTER 5 & 6	SEMESTER 1 & 2	SEMESTER 1 & 2	
Students are expected to complete 108 credit hours within Year 1-3 at NTHU.			Students are expected to complete 8 courses/24 credit hours (undergraduate) as part of their first year at ASU.	The MS curriculum is two semesters with quarter-based courses:	
For detailed description of the plan, please see Exhibit L.			<ul style="list-style-type: none">• FIN 361 Advanced Managerial Finance• FIN 420 Personal Portfolio Management• FIN 421 Security Analysis and Portfolio Management• FIN 427 Derivative Financial Securities• FIN 331 Financial Markets & Institutions• FIN 380 Personal Financial Management• FIN 385 Personal Insurance Planning• FIN 386 Estate Planning Strategies• FIN 431 Management of Financial Institutions• FIN 455 Entrepreneurial Finance• FIN 456 International Financial Management• FIN 460 Personal Finance Cases and Modeling• FIN 461 Financial Cases and Modeling• REA 380 Real Estate Fundamentals• REA 401 Real Estate Appraisal• REA 411 Real Estate Law• REA 441 Real Estate Land Development• REA 456 Real Estate Investments	<ul style="list-style-type: none">• ACC 502 Financial Accounting (2.5 or 3)• FIN 502 Managerial Finance (2.5 or 3)• FIN 509 Quantitative Methods in Finance I (3)• FIN 525 Investment Strategies (2.5)• FIN 530 Derivatives (3)• FIN 535 Quantitative Methods in Finance II (3)• FIN 545 Advanced Corporate Finance (2.5)• FIN 550 Fixed Income (2.5)• FIN 560 International Finance (2.5)• FIN 565 Risk Management in Banks and Financial Institutions (2.5)• FIN 555 Entrepreneurial Finance (2.5) OR FIN 597 AI and Machine Learning Applications in Finance (2.5)• Elective (0--1 credit hours) <p>Culminating Experience</p> <ul style="list-style-type: none">• FIN 575 Finance Capstone (2.5)	
Total Credits: 36	Total Credits: 36	Total Credits: 36	Total Credits: 24	Total Credits: 32	
Notes:					
<div>1. 400 level completed at ASU must be approved by the partner university since students will be receiving their bachelor degree from their home institution. 500 level courses will be used towards ASU's graduate programs.</div> <div>2. Students may use up to 6 credits from the following 400 level courses toward MS Finance requirements:</div> <div><div>- FIN 427 Derivative Financial Securities fulfills FIN 530 in MS FIN program</div><div>- FIN 455 Entrepreneurship Finance fulfills FIN 555 in MS FIN program</div><div>- FIN 456 International Financial Management fulfills FIN 560 in MS FIN program</div></div>					

EXHIBIT D

Curriculum of Plan of Study (POS) 3 + 1 + 1 Format				
National Tsing Hua University (NTHU) College of Technology Management Bachelor of Arts in Economics [Total credit hours 108]			ARIZONA STATE UNIVERSITY (ASU) W. P. Carey School of Business Master of Science in Information Systems Management [Total credit hours 54 at ASU]	
Undergraduate Courses:			Undergraduate Courses:	Graduate Matriculated Courses:
YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
SEMESTER 1 & 2	SEMESTER 3 & 4	SEMESTER 5 & 6	SEMESTER 1 & 2	SEMESTER 1 & 2
<p>Students are expected to complete 108 credit hours within Year 1-3 at NTHU.</p> <p>For detailed description of the plan, please see Exhibit L.</p>			<p>Students are expected to complete 8 courses/24 credit hours (undergraduate) as part of their first year at ASU.</p> <ul style="list-style-type: none"> • ECN 304 Classical to Modern Economic Thought • ECN 410 Applied Regression Analysis and Forecasting • ECN 438 International Monetary Economics • ECN 441 Public Economics • ECN 453 Industrial Organization and Competition Policy • ECN 470 Mathematical Economics • ECN 345 Survey of Environmental and Resource Economics • ECN 360 Economic Development • ECN 416 Game Theory and Economic Behavior • ECN 421 Labor Economics • ECN 423 Economics of Education • ECN 436 International Trade Theory • ECN 445 Environmental Economics 	<p>The MS curriculum is two semesters with quarter-based courses. International students have an option for full summer internship.</p> <ul style="list-style-type: none"> • CIS 525 Strategic Value of IT (3) • CIS 506 Information Management (3) • CIS 510 Enterprise Process and Systems (3) • CIS 541 Business Data Visualization (3) • CIS 560 IT Services and Project Management (3) • CIS 591 Data & Technology Governance in Business (3) • CIS 565 Artificial Intelligence in Business (3) <p>(Students choose 2 elective courses at 3 credit hours each)</p> <ul style="list-style-type: none"> • CIS 531 Cloud Architecture and Strategy (3) • CIS 540 Enterprise Cyber Security (3) • CIS 512 Business Intelligence (3) <p>Culminating Experience</p> <ul style="list-style-type: none"> • CIS 575 Emerging Technologies (Capstone, 3)
Total Credits: 36	Total Credits: 36	Total Credits: 36	Total Credits: 24	Total Credits: 30
Notes: 400 level completed at ASU must be approved by the partner university since students will be receiving their bachelor degree from their home institution. 500 level courses will be used towards ASU's graduate programs.				

EXHIBIT E

Curriculum of Plan of Study (POS) 3 + 1 + 1 Format					
National Tsing Hua University (NTHU) College of Technology Management Bachelor of Arts in Economics [Total credit hours108]			ARIZONA STATE UNIVERSITY (ASU) W. P. Carey School of Business Master of Science in Supply Chain Management [Total credit hours 54 at ASU]		
Undergraduate Courses:			Undergraduate Courses:	Graduate Matriculated Courses:	
YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	
SEMESTER 1 & 2	SEMESTER 3 & 4	SEMESTER 5 & 6	SEMESTER 1 & 2	SEMESTER 1 & 2	
Students are expected to complete 108 credit hours within Year 1-3 at NTHU.			Students are expected to complete 8 courses/24 credit hours (undergraduate) as part of their first year at ASU.	The MS curriculum consists of 4 quarter-based courses:	
For detailed description of the plan, please see Exhibit L.			<ul style="list-style-type: none">• ECN 304 Classical to Modern Economic Thought• ECN 410 Applied Regression Analysis and Forecasting• ECN 438 International Monetary Economics• ECN 441 Public Economics• ECN 453 Industrial Organization and Competition Policy• ECN 470 Mathematical Economics• ECN 345 Survey of Environmental and Resource Economics• ECN 360 Economic Development• ECN 416 Game Theory and Economic Behavior• ECN 421 Labor Economics• ECN 423 Economics of Education• ECN 436 International Trade Theory• ECN 445 Environmental Economics	<ul style="list-style-type: none">• SCM 502 Operations and Supply Management (3)• SCM 520 Strategic Procurement (3)• CIS 512 Business Intelligence (3)• SCM 515 Decision Models for Supply Chain Management (3)• SCM 591 Seminar: Sustainability and Social Responsibility (3)• SCM 587 Project Management (1.5)• SCM 532 Supply Chain Cost and Design Issues (3)• SCM 541 Logistics in the Supply Chain (3)• SCM 521 Supply Management and Negotiation (3)• SCM 593 Corporate Project II (1.5) <p>Culminating Experience</p> <ul style="list-style-type: none">• SCM 551 Operations Planning and Execution (3) <p>Note: The Master of Science in Supply Chain Management is a lock-step 11- course program</p>	
Total Credits: 36	Total Credits: 36	Total Credits: 36	Total Credits: 24	Total Credits: 30	
Notes: 400 level completed at ASU must be approved by the partner university since students will be receiving their bachelor degree from their home institution. 500 level courses will be used towards ASU's graduate programs.					

EXHIBIT F

Curriculum of Plan of Study (POS) 3 + 1 + 1 Format					
National Tsing Hua University (NTHU) College of Technology Management Bachelor of Arts in Economics [Total credit hours 108]			ARIZONA STATE UNIVERSITY (ASU) W. P. Carey School of Business Master of Taxation (MTax) in Taxation and Data Analytics [Total credit hours 54 at ASU]		
Undergraduate Courses:			Undergraduate Courses:	Graduate Matriculated Courses:	
YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	
SEMESTER 1 & 2	SEMESTER 3 & 4	SEMESTER 5 & 6	SEMESTER 1 & 2	SEMESTER 1 & 2	
Students are expected to complete 108 credit hours within Year 1-3 at NTHU.			Students are expected to complete 8 courses/24 credit hours (undergraduate) as part of their first year at ASU.	The MTax curriculum is two semesters quarter-based courses:	
For detailed description of the plan, please see Exhibit L.			<ul style="list-style-type: none">• ECN 304 Classical to Modern Economic Thought• ECN 410 Applied Regression Analysis and Forecasting• ECN 438 International Monetary Economics• ECN 441 Public Economics• ECN 453 Industrial Organization and Competition Policy• ECN 470 Mathematical Economics• ECN 345 Survey of Environmental and Resource Economics• ECN 360 Economic Development• ECN 416 Game Theory and Economic Behavior• ECN 421 Labor Economics• ECN 423 Economics of Education• ECN 436 International Trade Theory• ECN 445 Environmental Economics	<ul style="list-style-type: none">• ACC 571 Taxation of Corporations and Shareholders (3)• ACC 577 Tax Research, Professional Responsibilities and Property Transactions (3)• ACC 520 Statistics and Coding for Accounting Analytics (3)• ACC 521 Accounting Analytics Concepts and Tools (3)• ACC 587 State and Local Taxation (3)• ACC 573 Taxation of Pass-Through Entities (3) <p>(Students choose 3 courses at 3 credit hours each)</p> <ul style="list-style-type: none">• ACC 591 Professional Responsibilities I, II and III (3)• ACC 575 Family Financial, Tax and Wealth Transfer Planning (3)• ACC 591 Critical Judgements in Accounting (3)• ACC 511 Accounting for Income Taxes (3)• ACC 581 ESG Reporting and Ethics (3)• ACC 585 Performance Measurement and Advanced Managerial Accounting (3)• ACC 513 Advanced Financial Accounting (3) <p>Culminating Experience</p> <ul style="list-style-type: none">• ACC 589 International Taxation (3)	
Total Credits: 36	Total Credits: 36	Total Credits: 36	Total Credits: 24	Total Credits: 30	
Notes: 400 level completed at ASU must be approved by the partner university since students will be receiving their bachelor degree from their home institution. 500 level courses will be used towards ASU's graduate programs.					

EXHIBIT G

Curriculum of Plan of Study (POS) 3 + 1 + 1 Format					
National Tsing Hua University (NTHU) College of Technology Management Bachelor of Science in Quantitative Finance [Total credit hours 107]			ARIZONA STATE UNIVERSITY (ASU) W. P. Carey School of Business Master of Science in Finance [Total credit hours 56 at ASU]		
Undergraduate Courses:			Undergraduate Courses:	Graduate Matriculated Courses:	
YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	
SEMESTER 1 & 2	SEMESTER 3 & 4	SEMESTER 5 & 6	SEMESTER 1 & 2	SEMESTER 1 & 2	
Students are expected to complete 107 credit hours within Year 1-3 at NTHU. For detailed description of the plan, please see Exhibit M.			Students are expected to complete 8 courses/24 credit hours (undergraduate) as part of their first year at ASU.	The MS curriculum is two semesters with quarter-based courses:	
			<ul style="list-style-type: none">• ECN 304 Classical to Modern Economic Thought• ECN 410 Applied Regression Analysis and Forecasting• ECN 438 International Monetary Economics• ECN 441 Public Economics• ECN 453 Industrial Organization and Competition Policy• ECN 470 Mathematical Economics• ECN 345 Survey of Environmental and Resource Economics• ECN 360 Economic Development• ECN 416 Game Theory and Economic Behavior• ECN 421 Labor Economics• ECN 423 Economics of Education• ECN 436 International Trade Theory• ECN 445 Environmental Economics	<ul style="list-style-type: none">• ACC 502 Financial Accounting (2.5 or 3)• FIN 502 Managerial Finance (2.5 or 3)• FIN 509 Quantitative Methods in Finance I (3)• FIN 525 Investment Strategies (2.5)• FIN 530 Derivatives (3)• FIN 535 Quantitative Methods in Finance II (3)• FIN 545 Advanced Corporate Finance (2.5)• FIN 550 Fixed Income (2.5)• FIN 560 International Finance (2.5)• FIN 565 Risk Management in Banks and Financial Institutions (2.5)• FIN 555 Entrepreneurial Finance (2.5) OR FIN 597 AI and Machine Learning Applications in Finance (2.5)• Elective (0--1 credit hours)Culminating Experience• FIN 575 Finance Capstone (2.5)	
Total Credits: 36	Total Credits: 36	Total Credits: 35	Total Credits: 24	Total Credits: 32	
Notes: 400 level completed at ASU must be approved by the partner university since students will be receiving their bachelor degree from their home institution. 500 level courses will be used towards ASU's graduate programs.					

EXHIBIT H

National Tsing Hua University (NTHU) College of Technology Management Bachelor of Arts in Economics	
<u>Course Title</u>	<u>Credit Hours</u>
Mandatory Courses required by the University	30
Chinese, English, general education, and physical education courses	30
Mandatory Courses required by the College	24
Principles of Economics I	3
Principles of Economics II	3
Accounting I	3
Accounting II	3
Financial Management	3
Management	3
Introductory Study of Law	3
Introduction to Civil & Commercial Law or Introduction of Technology Law	3
Mandatory Core Courses required by the Program	24
Calculus I	3
Calculus II	3
Statistics I	3
Statistics II	3
Microeconomics I	3
Microeconomics II	3
Macroeconomics I	3
Macroeconomics II	3
Mandatory Elective Courses	30
(1) Two out of the following 4 courses must be taken (12 credits) /Select 2 out of the following 4 courses (12 credits) <ul style="list-style-type: none"> • Money and Banking I & II -6 credits • Public Finance I& II -6 credits • International Economics I &II -6 credits • Introduction to Econometrics I &II -6 credits 	12
(2) Elective courses offered by the Department of the Economics	18
Total	108

Note:

1. Students of NTHU Econ Department are required to complete at least 108 credit hours in Year 1,2 and 3 before departing for ASU.
2. Courses taken at Year 4 (first year at ASU) may be transferred towards bachelor's degree at NTHU the maximum credits hours of transfer will be 20 credit hours.
3. Minimum requirements for NTHU BA in Economics degree is 128 credit hours.
4. Students will have dual enrollments at Year 4 at NTHU and ASU BA.

EXHIBIT I

National Tsing Hua University (NTHU) College of Technology Management Bachelor of Science in Quantitative Finance	
<u>Course Title</u>	<u>Credit Hours</u>
Mandatory Courses required by the University	30
Chinese, English, general education, and physical education courses	30
Mandatory Courses required by the College	24
Principles of Economics I	3
Principles of Economics II	3
Accounting I	3
Accounting II	3
Financial Management	3
Management	3
Introductory Study of Law	3
Introduction to Civil & Commercial Law or Introduction of Technology Law	3
Mandatory Core Courses required by the Program	53
Calculus I	4
Calculus II	4
Statistics I	3
Statistics II	3
Microeconomics I	3
Macroeconomics I	3
Advanced Calculus I	3
Advanced Calculus II	3
Derivatives Market	3
Corporate Finance	3
Derivatives Pricing	3
Business Finance or Investment	3
Mathematical Statistics I	3
Linear Algebra	3
Financial Big Data Analysis	3
Introduction to Programming	3
Introduction to Information Engineering	3
Total	107

Note:

1. Students of NTHU Econ Department are required to complete at least 107 credit hours in Year 1,2 and 3 before departing for ASU.
2. Courses taken at Year 4 (first year at ASU) may be transferred towards bachelor's degree at NTHU and the maximum credits hours of transfer will be 21 credit hours.
3. Minimum requirements for NTHU BS in Quantitative Finance degree is 128 credit hours.
4. Students will have dual enrollments at Year 4 at NTHU and ASU BA.