

Aligning Academic Courses and Selected Degree Programs with the 2020 CMA Examination

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EXECUTIVE SUMMARY

Revised curriculum mappings can help undergraduate and graduate students streamline their studies while they prepare for the CMA certification exam.

CMA® (Institute of Certified Management Accountants), the affiliate of IMA® (Institute of Management Accountants) that develops and administers the CMA® (Certified Management Accountant) exam, works diligently to ensure that the CMA certification requirements are rigorous and relevant. The CMA examination is regularly reviewed and modified as needed to fully reflect the higher expectations and expanding roles that accounting and financial professionals play in today's global business environment.

For example, given that technology is rapidly transforming our profession, ICMA recently incorporated a much heavier emphasis on information technology and data analytics into the CMA exam. The key changes, which are effective January 1, 2020, represent an alignment with the enhanced IMA Management Accounting Competency Framework published in February 2019.¹ This Framework includes a mapping of the competencies to the subjects covered on the CMA examination.

In two earlier articles published in *Management Accounting Quarterly* (Fall 2011 and Winter 2016), we featured curriculum mappings that illustrated the alignment between the content and topic areas tested on the CMA examination and the content and topic areas covered in typical:

- Undergraduate accounting degree programs,

- Undergraduate finance degree programs,
- Master of Accountancy (MAcc) degree programs, and
- Master of Business Administration (MBA) degree programs.²

This article updates the mappings to reflect the forthcoming changes to the CMA exam. It is our strong belief that these curriculum mappings will assist educators (professors, department heads, and deans) in understanding and recommending the CMA program to undergraduate and graduate business students.

Additionally, they provide undergraduate students in accounting or finance degree programs and graduate students in MAcc or MBA programs with the information they need to prepare for the CMA examination. Since students can take the CMA examination *prior* to earning their bachelor's degree, we prescribe a guide for aiding them in planning their coursework, including the selection of electives, to improve and streamline their preparation for the CMA examination and increase their chances of success.

BACKGROUND

Research conducted by IMA and others has shown a significant transformation of the finance function away from lower-valued-added routine tasks (which are now automated) to higher-value-added strategic activities.³ The growing domain of finance now focuses more on value creation, turning information into intelligence and foresight.

To succeed in their expanded and evolving role, management accountants will surely need to utilize much more sophisticated analytics and higher-order thinking skills. Accordingly, IMA established a task force to revise and enhance its Competency Framework to reflect the new skills needed by management accountants. After extensive deliberations, focus groups, and a review of primary and secondary research, the task force issued an exposure draft of the revised Framework. Feedback was incorporated into the updated Management Accounting Competency Framework, which was released in February 2019. The new Framework is accompanied by a mapping of the competencies to the content of the new CMA examination, which is effective January 1, 2020.

The key changes to the CMA examination are summarized below.

CMA Exam Part 1

- Title change to Financial Planning, Performance, and Analytics. The previous title was Financial Reporting, Planning, Performance, and Control.
- Planning, Budgeting, and Forecasting's weight is reduced from 30% to 20%.
- Cost Management is split into two parts: Strategic Cost Management and Cost Accounting (per the revised Competency Framework) with the combined weight reduced from 20% to 15%.
- Technology and Analytics, a new topic, is added with a 15% weight.

Format: four hours of exam time, 100 multiple-choice questions, and two essay questions

Recommended Preparation Time: approximately 125-175 hours

CMA Exam Part 2

- Title change to Strategic Financial Management. The previous title was Financial Decision Making.
- Investments Decisions' weight is reduced from 15% to 10%.
- Financial Statement Analysis's weight is reduced from 25% to 20%.
- Increased weight on Professional Ethics from 10% to 15% and on Decision Analysis from 20% to 25%.

Format: four hours of exam time, 100 multiple-choice questions, and two essay questions

Recommended Preparation Time: approximately 125-175 hours

The revisions to the CMA exam raise the question of how students can best design their educational programs to successfully prepare for and pass the exam. This article provides an answer to that question. We first examine undergraduate programs in finance and accounting and then consider graduate accounting and MBA programs.

UNDERGRADUATE PROGRAMS

Curricular Content

In our first step in designing an undergraduate program to meet the preparation needs for the CMA exam, we

Table 1: Typical Undergraduate Program Curriculum

(a) Accounting Program^{1,3}

ADV	Advanced Accounting	REQ
AIS	Accounting Information Systems	ELEC
AUD	Auditing	REQ
BE	Business Ethics	REQ
CA	Cost Accounting/Advanced Managerial Accounting	ELEC or REQ
CAP	Business Capstone	REQ
CF	Corporate Finance (Intermediate)	REQ
FA	Financial Accounting	REQ
INT	Intermediate Accounting	REQ
IF	International Finance	ELEC
INV	Investments	ELEC
MA	Managerial Accounting	REQ
MIE	Microeconomics	REQ
OP	Operations Management	REQ
QA	Quantitative Analysis/Analytics/Statistics	ELEC or REQ
TAX	Federal Income Taxation	REQ

(b) Finance Program^{2,3,4}

ADV	Advanced Accounting	ELEC
AIS	Accounting Information Systems	ELEC
AUD	Auditing	ELEC
BE	Business Ethics	REQ
CA	Cost Accounting	ELEC
CAP	Business Capstone	REQ
CF	Corporate Finance (Intermediate)	REQ
FA	Financial Accounting	REQ
INT	Intermediate Accounting	ELEC
IF	International Finance	REQ
INV	Investments	REQ
MA	Managerial Accounting	REQ
MIE	Microeconomics	REQ
OP	Operations Management	REQ
QA	Quantitative Analysis/Analytics/Statistics	REQ
TAX	Federal Income Taxation	ELEC

Key: REQ = required, ELEC = elective

Notes:

¹In most undergraduate accounting degree programs, at least one course in Corporate Finance (CF) is required.

²In most undergraduate **finance** degree programs, at least two accounting courses—Financial Accounting (FA) and Managerial Accounting (MA)—are required.

³In most undergraduate **accounting and finance** degree programs, at least one course in Operations Management (OP), Microeconomics (MIE), and Business Ethics (BE) is required.

⁴The business courses listed are **not** all inclusive for each respective degree/program.

examined the curriculum of selected programs at a variety of institutions, including public and private as well as large and small schools. To assist us in developing our recommendations, we consulted with an external panel of accounting and finance professors. This panel was selected to represent a wide range of educational programs.

The outcome of our analysis for undergraduate programs is presented in Table 1, which shows the content of typical undergraduate accounting and finance programs that is specifically relevant to the CMA exam. A course legend describing course abbreviations also is provided in Table 1. For the undergraduate programs, courses are identified as either required or elective under their respective degree programs.

Generic descriptions of the courses listed in Table 1 are included in Appendix 1. In that Appendix, topics covered within a course that are tested on the CMA exam are listed in bold type.

We found a wide degree of variation with respect to the inclusion of analytics in the curriculum. Most commonly, schools have rebranded their former quantitative analysis/statistics course to something including analytics. Less frequently, schools have added a separate analytics course, seeded analytics into most of their business core courses, or have not yet updated their curriculum to include greater content in this area. In the undergraduate and graduate accounting curriculum, some analytics coverage is commonly found in the Auditing course.

Curriculum Mapping

To what extent do the courses included in these programs cover the content of the new CMA exam? In order to answer this question, we looked at the content specification outlines of the areas tested on the CMA examination and studied where and to what extent these areas are covered in the typical structure of the four types of business programs we discuss.

Our evaluation was based on a review of online syllabi, our own experiences, and those of our review panel. For the undergraduate programs, the output of this analysis resulted in the curriculum mappings presented in Tables 2 and 3.

Each table lists the areas covered by the CMA exam and indicates the extent to which each program covers

Table 2: CMA Content Coverage in a Typical Undergraduate Accounting Program

(Courses typically offered as electives are shown in *italics*.)

(a) Part 1 – Financial Planning, Performance, and Analytics

	Heavy	Moderate	Limited	Slight	None
A. External Financial Reporting Decisions (15%)					
1. Financial statements	INT, FA				
2. Recognition, measurement, valuation, and disclosure	INT	FA			
B. Planning, Budgeting, and Forecasting (20%)					
1. Strategic planning		CAP	OP		
2. Budgeting concepts	CA	MA		CF	
3. Forecasting techniques		CF	MA		
4. Budgeting methodologies		CA, MA		CF	
5. Annual profit plan and supporting schedules		CA, MA	CF		
6. Top-level planning and analysis		CF, CAP	INV		
C. Performance Management (20%)					
1. Cost and variance measures	CA	MA			
2. Responsibility centers and reporting segments		CA	MA		
3. Performance measures		CA, MA	OP	CF	
D. Cost Management (15%)					
1. Measurement concepts	CA, MA				
2. Costing systems	CA	MA			
3. Overhead costs	CA	MA			
4. Supply chain management	OP				
5. Business process improvement		OP	CA, MA		
E. Internal Controls (15%)					
1. Governance, risk, and compliance		AIS, AUD			
2. System controls and security measures		AUD, AIS			
F. Technology and Analytics (15%)					
1. Information systems	AIS				
2. Data governance		AIS		QA	
3. Technology-enabled finance transformation		AIS	CF		
4. Data analytics	QA	AUD		CF	

(b) Part 2 – Strategic Financial Management

	Heavy	Moderate	Limited	Slight	None
A. Financial Statement Analysis (20%)					
1. Basic financial statement analysis	FA, INT	AUD	ADV, CF		
2. Financial ratios	CF	INT	AUD, FA		
3. Profitability analysis	INV	INT, CF			
4. Special issues		ADV, INT			
B. Corporate Finance (20%)					
1. Risk and return		CF, INV	AUD	MA	
2. Long-term financial management	INV	CF			
3. Raising capital	CF	INV			
4. Working capital management		CF		FA	
5. Corporate restructuring		CF	ADV		
6. International finance	IF			CF	
C. Decision Analysis (25%)					
1. Cost/volume/profit analysis	MA, CA			CF	
2. Marginal analysis		CA, MIE	CF		
3. Pricing			CA, MA, MIE		
D. Risk Management (10%)					
1. Enterprise risk		INV	AIS, AUD	CF	
E. Investment Decisions (10%)					
1. Capital budgeting process	CF	MA	CA		
2. Capital investment analysis methods	CF	MA	INT	CA	
F. Professional Ethics (15%)					
1. Business ethics	BE		AUD		
2. Ethical considerations for management accounting and financial management professionals		BE, MA	AUD, CA		
3. Ethical considerations for the organization	BE	AUD		CF	

Table 3: CMA Content Coverage in a Typical Undergraduate Finance Program

(Courses typically offered as electives are shown in *italics*.)

(a) Part 1 – Financial Planning, Performance, and Analytics

	Heavy	Moderate	Limited	Slight	None
A. External Financial Reporting Decisions (15%)					
1. Financial statements	<i>INT, FA</i>				
2. Recognition, measurement, valuation, and disclosure	<i>INT</i>	FA			
B. Planning, Budgeting, and Forecasting (20%)					
1. Strategic planning			CAP, OP		
2. Budgeting concepts	CA	MA		CF	
3. Forecasting techniques		CF	MA		
4. Budgeting methodologies	CA	MA		CF	
5. Annual profit plan and supporting schedules		CA, MA	CF		
6. Top-level planning and analysis		CAP, CF	INV		
C. Performance Management (20%)					
1. Cost and variance measures	CA	MA			
2. Responsibility centers and reporting segments		CA	MA		
3. Performance measures		CA, MA	OP	CF	
D. Cost Management (15%)					
1. Measurement concepts	CA, MA				
2. Costing systems	CA	MA			
3. Overhead costs	CA	MA			
4. Supply chain management	OP				
5. Business process improvement		OP	CA, MA		
E. Internal Controls (15%)					
1. Governance, risk, and compliance		<i>AIS, AUD</i>			
2. System controls and security measures		<i>AUD, AIS</i>			
F. Technology and Analytics (15%)					
1. Information systems	<i>AIS</i>				
2. Data governance		<i>AIS</i>			
3. Technology-enabled finance transformation		<i>AIS</i>	CF		
4. Data analytics	QA		CF		

(b) Part 2 – Strategic Financial Management

	Heavy	Moderate	Limited	Slight	None
A. Financial Statement Analysis (20%)					
1. Basic financial statement analysis	FA, INT	<i>AUD</i>	<i>AUD, CF</i>		
2. Financial ratios	CF	<i>INT</i>	<i>AUD, FA</i>		
3. Profitability analysis	INV	<i>INT, CF</i>			
4. Special issues		<i>ADV, INT</i>			
B. Corporate Finance (20%)					
1. Risk and return		CF, INV	<i>AUD</i>	MA	
2. Long-term financial management	INV	CF			
3. Raising capital	CF	INV			
4. Working capital management		CF		FA	
5. Corporate restructuring		CF	<i>ADV</i>		
6. International finance	IF			CF	
C. Decision Analysis (25%)					
1. Cost/volume/profit analysis	MA, CA			CF	
2. Marginal analysis		CA, MIE	CF		
3. Pricing			CA, MA, MIE		
D. Risk Management (10%)					
1. Enterprise risk		INV	<i>AIS, AUD</i>	CF	
E. Investment Decisions (10%)					
1. Capital budgeting process	CF	MA	CA		
2. Capital investment analysis methods	CF	MA	<i>INT</i>	CA	
F. Professional Ethics (15%)					
1. Business ethics	BE		<i>AUD</i>		
2. Ethical considerations for management accounting and financial management professionals		BE, MA	<i>AUD, CA</i>		
3. Ethical considerations for the organization	BE	<i>AUD</i>		CF	

Table 4: Course Recommendations for Undergraduate Accounting Majors

	Course	Typical Class Year
AIS	Accounting Information Systems	JR
AUD	Auditing	SR
BE	Business Ethics	JR
CA	Cost Accounting/Advanced Managerial Accounting	JR/SR
CAP	Business Capstone	SR
CF	Corporate Finance (Intermediate)	JR
FA	Financial Accounting	SOPH
INT	Intermediate Accounting	JR
IF	International Finance	JR/SR
INV	Investments	JR/SR
MA	Managerial Accounting	SOPH
MIE	Microeconomics	SOPH
OP	Operations Management	JR
QA	Quantitative Analysis/Analytics/Statistics	JR/SR
TAX	Federal Income Taxation	JR/SR

those topics. The degrees of coverage ranges are *heavy*, *moderate*, *limited*, *slight*, or *no coverage* of the content areas tested on the new CMA exam.

As indicated in Table 2a, all topic areas included in the first part of the CMA exam are usually covered, at least to a moderate degree, in the typical undergraduate accounting program with an appropriate selection of electives. This would require taking the elective courses Cost Accounting and Accounting Information Systems *if* these are not in the core accounting curriculum.

The situation is slightly different for the second part of the CMA exam. Table 2b indicates there are clear gaps in the typical accounting undergraduate curriculum and that a moderate degree of knowledge is needed in the areas covered by the exam. In particular, the areas of international finance and pricing have only limited or slight coverage in most accounting degree programs, whereas there is likely no coverage of financial investments. The addition of the Investments course (see Table 3b) addresses most of these deficiencies.

Based on our evaluation and the typical content of undergraduate courses, a program that includes the coursework shown in Table 4 would prepare undergraduate accounting majors for the CMA exam.

Suggested Program of Study—Accounting Undergraduate Program

Students typically take Financial Accounting, Managerial Accounting, and Microeconomics in the

Table 5: Suggested Program of Study Starting in Junior Year Undergraduate Accounting Majors

Fall Semester	Spring Semester	Summer Term
Junior Year		
Intermediate Accounting I Corporate Finance Management/Organizational Behavior Accounting Information Systems/IT Finance Elective	Intermediate Accounting II International Finance (Elective) Investments (Elective) Business Ethics Operations Management	CMA Exam Part 2 (May/June)
Senior Year		
Cost Accounting Auditing Business Capstone Quantitative Analysis/Analytics/Statistics Free Elective	Business Law Accounting Capstone Federal Income Taxation Free Elective Business Analytics or IT (if available)	*If a candidate is not able to prepare for Part 1 of the CMA exam in the fall of the senior year, the summer term is a backup. (May/June)
CMA Exam Part 1* (January)		

Table 6: Course Recommendations for Undergraduate Finance Majors

	Course	Typical Class Year
AIS	Accounting Information Systems	JR
AUD	Auditing (desirable)	JR/SR
BE	Business Ethics	JR
CA	Cost Accounting/Advanced Managerial Accounting (desirable)	JR
CAP	Business Capstone	SR
CF	Corporate Finance	JR
FA	Financial Accounting	SOPH
INT	Intermediate Accounting	JR
IF	International Finance	JR/SR
INV	Investments	JR/SR
MA	Managerial Accounting	SOPH
MIE	Microeconomics	SOPH
OP	Operations Management	JR
QA	Quantitative Analysis/Analytics/Statistics	JR/SR

sophomore year of an undergraduate accounting program. Based on the course recommendations in Table 4, the course sequence in Table 5 enables students to efficiently integrate taking the CMA exam with the course of study starting in their junior year.

Undergraduate Finance Program

The highly respected CMA is the most appropriate professional credential for both accounting and finance professionals working in business. This raises the question as to what extent the typical undergraduate finance curriculum prepares students for the CMA exam.

A review of the content of the required courses included in the typical finance undergraduate curriculum (see Table 3) shows that the curriculum is likely to include strong coverage of the content of Part 2 of the exam, but it is not as strong on Part 1 content. Selection of appropriate electives can address most of the deficiencies. These elective courses include (if not already included as required courses) Intermediate Accounting and Accounting Information Systems. If there is room for an additional elective, a Cost Accounting/Advanced Managerial Accounting course is also desirable. Also, a Business

Table 7: Typical Graduate Program Curriculum

(a) Master of Accountancy Program		
AIS	Accounting Information Systems	PRE
AUD	Auditing	PRE
BLE	Business/Legal/Ethics/Corporate Governance	REQ or ELEC
CA	Cost Accounting/Advanced Managerial Accounting	REQ or ELEC
CF	Corporate Finance	REQ or ELEC
FA	Introductory Financial Accounting	PRE
FSA	Financial Statement Analysis	REQ or ELEC
GOV	Governmental and Nonprofit Accounting	ELEC
INV	Investments	ELEC
INT	Intermediate Accounting	PRE
ITL	International Accounting	ELEC
MA	Managerial Accounting	PRE
MCS	Management Control Systems	REQ or ELEC
OP	Operations Management	PRE
QA	Quantitative Analysis/Analytics/Statistics	PRE or REQ or ELEC
SEC	Securities, Markets, and Financial Institutions	ELEC
TAX	Federal Income Taxation	PRE
(b) MBA Program		
AM	Accounting for Managers	REQ
BLE	Behavioral/Legal/Ethics/Corporate Governance	REQ
CF	Corporate Finance/Financial Management	REQ
ECO	Economic Analysis (Micro/Macro)	REQ
FA	Introductory Financial Accounting	PRE
FSA	Financial Statement Analysis	ELEC
IB	International Business	REQ
IT	Managing Information Technology	REQ
INV	Investments	ELEC
MA	Managerial Accounting	PRE
MKT	Marketing Management	REQ
OB	Organizational Behavior	REQ
OP	Operations Management	REQ
QA	Quantitative Analysis/Analytics/Statistics	REQ
SM	Strategic Management	REQ

Key: PRE = prerequisite/foundational, REQ = required, ELEC = elective

Table 8: CMA Content Coverage in a Typical Master of Accountancy Program

(Courses typically offered as electives are shown in *italics*.)

(a) Part 1—Financial Planning, Performance, and Analytics					
	Heavy	Moderate	Limited	Slight	None
A. External Financial Reporting Decisions (15%)					
1. Financial statements	INT, FA	FSA			
2. Recognition, measurement, valuation, and disclosure	INT	FA			
B. Planning, Budgeting, and Forecasting (20%)					
1. Strategic planning			OP		
2. Budgeting concepts	CA	MA		CF	
3. Forecasting techniques		CF	MA		
4. Budgeting methodologies	CA	MA		CF	
5. Annual profit plan and supporting schedules		CA, MA	CF		
6. Top-level planning and analysis		CF	INV		
C. Performance Management (20%)					
1. Cost and variance measures	MCS, CA		MA		
2. Responsibility centers and reporting segments	MCS	CA	MA		
3. Performance measures	MCS	CA, MA		CF	
D. Cost Management (15%)					
1. Measurement concepts	CA, MA, MCS				
2. Costing systems	CA	MA, MCS			
3. Overhead costs	CA, MCS	MA			
4. Supply chain management	OP				
5. Business process improvement	MCS	MA, OP	CA		
E. Internal Controls (15%)					
1. Governance, risk, and compliance	AIS, AUD				
2. System controls and security measures	AIS	AUD			
F. Technology and Analytics (15%)					
1. Information systems	AIS				
2. Data governance		AIS			
3. Technology-enabled finance transformation			AIS		
4. Data analytics	QA	AUD			
(b) Part 2—Strategic Financial Management					
	Heavy	Moderate	Limited	Slight	None
A. Financial Statement Analysis (20%)					
1. Basic financial statement analysis	CF	FA, FSA	INT	AUD	
2. Financial ratios		FSA, CF			
3. Profitability analysis		FSA	CF		
4. Special issues		INT			
B. Corporate Finance (20%)					
1. Risk and return		CF, INV	AUD	MA	
2. Long-term financial management	CF		MCS		
3. Raising capital	SEC	CF	FIN, INT		
4. Working capital management	CF			FIN, FA	
5. Corporate restructuring		CF			
6. International finance		SEC, ITL		CF	
C. Decision Analysis (25%)					
1. Cost/volume/profit analysis	MA	CA	CF, MCS		
2. Marginal analysis		CA, MA	CF, MCS		
3. Pricing			CA, MA		
D. Risk Management (10%)					
1. Enterprise risk		AIS	AUD, MCS		
E. Investment Decisions (10%)					
1. Capital budgeting process	CF	MA	MCS		
2. Capital investment analysis methods	CF	MA, INV	INT		
F. Professional Ethics (15%)					
1. Business ethics	BLE	CA, MA	AUD		
2. Ethical considerations for management accounting and financial management professionals	BLE	AUD		CF, SEC	
3. Ethical considerations for the organization	BLE		AUD		

Table 9: CMA Content Coverage in a Typical MBA Program

(Courses typically offered as electives are shown in *italics*.)

(a) Part 1—Financial Planning, Performance, and Analytics

	Heavy	Moderate	Limited	Slight	None
A. External Financial Reporting Decisions (15%)					
1. Financial statements	FA	CF			
2. Recognition, measurement, valuation, and disclosure		FA			
B. Planning, Budgeting, and Forecasting (20%)					
1. Strategic planning	SM				
2. Budgeting concepts		MA		CF	
3. Forecasting techniques	QA	CF			
4. Budgeting methodologies		MA		CF	
5. Annual profit plan and supporting schedules		MA		CF	
6. Top-level planning and analysis	SM				
C. Performance Management (20%)					
1. Cost and variance measures	MA				
2. Responsibility centers and reporting segments			MA		
3. Performance measures		CF, MA			
D. Cost Management (15%)					
1. Measurement concepts	MA	AM			
2. Costing systems		MA	AM		
3. Overhead costs		MA	AM		
4. Supply chain management		OP			
5. Business process improvement		OP			
E. Internal Controls (15%)					
1. Governance, risk, and compliance		IT		AM	
2. System controls and security measures		IT		AM	
F. Technology and Analytics (15%)					
1. Information systems	IT				
2. Data governance		IT			
3. Technology-enabled finance transformation		IT			
4. Data analytics	QA				

(b) Part 2—Strategic Financial Management

	Heavy	Moderate	Limited	Slight	None
A. Financial Statement Analysis (20%)					
1. Basic financial statement analysis	CF	AM, FA			
2. Financial ratios		FSA	FA		
3. Profitability analysis		FSA			
4. Special issues			FSA		
B. Corporate Finance (20%)					
1. Risk and return		CF, INV		MA	
2. Long-term financial management	CF				
3. Raising capital		CF			
4. Working capital management	CF			FA	
5. Corporate restructuring		CF, SM			
6. International finance		IB		CF	
C. Decision Analysis (25%)					
1. Cost/volume/profit analysis		AM	CF		
2. Marginal analysis		MA	AM, CF, ECO		
3. Pricing		AM	MA, ECO		
D. Risk Management (10%)					
1. Enterprise risk				AM	
E. Investment Decisions (10%)					
1. Capital budgeting process	CF	MA			
2. Capital investment analysis methods	CF	MA, INV			
F. Professional Ethics (15%)					
1. Business ethics	BLE	MA	AM, BLE		
2. Ethical considerations for management accounting and financial management professionals	BLE	SM	OB	AM, CF	
3. Ethical considerations for the organization	BLE				

Table 10: Course Recommendations for MAcc Students

Prerequisites/Foundational	
AIS	Accounting Information Systems
AUD	Auditing
FA	Financial Accounting
INT	Intermediate Accounting
MA	Managerial Accounting
QA	Quantitative Analysis/Analytics/Statistics
TAX	Federal Income Taxation
MAcc Courses	
BLE	Business/Legal/Ethics/Corporate Governance
CA	Cost Accounting/Advanced Managerial Accounting
CF	Corporate Finance
FSA	Financial Statement Analysis
INV	Investments
MCS	Management Control Systems
QA	Quantitative Analysis/Analytics/Statistics
SEC	Securities, Markets, and Financial Institutions

THE CMA SCHOLARSHIP

To promote the CMA and encourage students to take the CMA examination, IMA established the CMA Scholarship in 2012. It is designed for high-achieving students who attend an accredited college or university. Each academic institution can nominate 10 students per academic year, and all 10 students nominated by a professor will earn the scholarship.

The CMA scholarship (www.imanet.org/CMA-scholarship) includes the following:

- Entrance fee for the CMA program and registration fees covering both parts of the exam (additional fees apply for reexaminations).
- Exam support package with retired exam questions and a glossary of terms.
- U.S. students get Wiley CMAexcel online test bank access for both exam parts for up to two years.
- Up to three years of IMA membership while pursuing the certification.

Students must activate their scholarship within two weeks of notification from IMA. IMA accepts applications year-round, with most scholarships awarded April through June. This time frame fits perfectly with our recommendation to take Part 2 of the CMA in May or June after the student's junior year.

Analytics course and an IT course will help cover the recent content additions to Part 1 of the CMA exam.

Based on our evaluation and the typical content of undergraduate courses, a program containing the coursework shown in Table 6 would prepare undergraduate finance majors for the CMA exam.

The suggested program of study for finance majors should parallel the program for accounting majors with the accounting courses filling elective slots and International Finance and Investments counting as required courses for the typical finance major.

GRADUATE PROGRAMS

Curricular Content

Similar to our analysis of undergraduate programs, we examined the courses contained in typical MAcc and MBA programs. The results are shown in Table 7, which lists the typical content of these programs. Generic descriptions of the courses listed in that table are included in Appendix 2. Topics covered within a course that are tested on the CMA exam are listed in bold type.

We note that program content can vary widely, particularly at the graduate level. We have provided what we believe are the courses most commonly included in these programs. We also note that there is a great deal of variation in course titles.

Curricular Mapping

To what extent do the courses included in these programs cover the content of the new CMA exam? In order to answer this question, we again look at the major content areas tested on the CMA examination and where and to what extent these areas are covered in the typical structure of MBA and graduate accounting programs. For these programs, the results of this analysis are the curriculum mappings presented in Tables 8 and 9.

These tables list the areas covered by the CMA exam and indicate the extent to which each program covers those topics. As in the tables for the undergraduate programs, the degrees of coverage range as follows: *heavy*, *moderate*, *limited*, *slight*, or *no coverage* of the content areas tested on the new CMA examination.

A course legend is provided in Table 7 for the course abbreviations used. For these graduate programs,

Table 11: Course Recommendations for MBA Students

Prerequisites/Foundational	
FA	Financial Accounting
MA	Managerial Accounting
MBA Courses	
AIS	Accounting Information Systems
AM	Accounting for Managers
BLE	Business/Legal/Ethics/Corporate Governance
CF	Corporate Finance/Financial Management
ECO	Economic Analysis (Micro/Macro)
IB	International Business
IT	Managing Information Technology
INV	Investments
MKT	Marketing Management (optional, typically required)
MCS	Management Control Systems (desirable)
OB	Organizational Behavior
OP	Operations Management
QA	Quantitative Analysis/Analytics/Statistics
SM	Strategic Management

courses are listed as required, elective, or prerequisite (foundational) to their respective degree programs.

Master of Accountancy Program

MAcc programs tend to be more diverse than the other programs considered, and putting together a program that prepares students in MAcc programs for the CMA exam can be more challenging. Cost Accounting/Advanced Managerial Accounting, Accounting Information Systems, and Corporate Finance are key to adequate preparation. A Management Control Systems course is also desirable.

Based on our evaluation and the typical content of graduate courses, a program where the coursework shown in Table 10 is selected would prepare MAcc students for the CMA exam.

Master of Business Administration Program

MBA programs tend to be more homogenous than MAcc programs and generally cover a body of knowledge that is very compatible with the CMA exam. As noted in Table 9, most of the CMA topics are covered at least to a moderate extent in the typical MBA program. Again, selection of appropriate electives is important for adequate exam preparation. Management Control

Systems, Accounting Information Systems, and Investments are important components of these programs, and an Auditing course is also desirable.

Based on our evaluation and the typical content of graduate courses, a program in which the coursework shown in Table 11 is selected would prepare MBA students for the CMA exam.

In summary, the new CMA exam tests the topics necessary for accounting and financial professionals working in organizations to succeed in their careers. Based on the information presented in this article, many accounting and finance students either through their regular curriculum or through a judicious selection of electives can take programs of study that prepare them to sit for and pass the CMA exam. ■

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ENDNOTES

- 1 IMA, Management Accounting Competency Framework, 2019, bit.ly/2S1bFO8.
- 2 Lori Fuller, Joseph Hargadon, and Raef Lawson, "The CMA Exam: How Well Does It Align with Typical Undergraduate and Graduate Business Programs?" *Management Accounting Quarterly*, Fall 2011, bit.ly/2nsNZIK; Lori Fuller, Joseph Hargadon, and Raef Lawson, "Aligning Academic Courses with the 2015 CMA Exam," *Management Accounting Quarterly*, Winter 2016, bit.ly/2ltGIYK.
- 3 Raef Lawson, "New Competencies for Management Accountants," *Strategic Finance*, March 2019, pp. 40-47, bit.ly/2nBudn.

Appendix 1: Typical Undergraduate Course Descriptions

Course	Course Description	Typical Course Content (Topics covered on CMA exam are in bold.)
ADV—Advanced Accounting	Advanced topics in financial reporting and accounting for international operations, multicorporate business entities, not-for-profit organizations, and government organizations.	<ul style="list-style-type: none"> ● Financial statement purpose, interpretation, and limitation ● Fair value accounting ● International Financial Reporting Standards (IFRS) vs. U.S. Generally Accepted Accounting Principles (GAAP) and other international issues ● Mergers and acquisitions ● Not-for-profit and governmental accounting
AIS—Accounting Information Systems	Provides a thorough understanding of the information systems that support the accounting function.	<ul style="list-style-type: none"> ● Internal control risk assessment ● AIS controls ● COBIT (Control Objectives for Information and Related Technology) ● COSO (Committee of Sponsoring Organizations of the Treadway Commission) <i>Internal Control—Integrated Framework</i> ● Enterprise risk management ● IT governance ● Business processes ● Systems development life cycle
AUD—Auditing	An in-depth study of audit, attestation, and other assurance services provided by independent auditors. The focus is on publicly traded companies, financial statement audits, and audits of internal controls over financial reporting.	<ul style="list-style-type: none"> ● Risk assessment (the entity, its environment, and internal controls) ● Materiality and risk (types and measures) ● Types of audits and reports ● AIS controls ● COSO <i>Internal Control—Integrated Framework</i> ● Evidence type and quality ● Audit, attestation, and quality control standards ● Professional ethics and legal liability ● Management assertions and audit evidence
BE—Business Ethics	Introduces ethics-related aspects to the business decision-making process. Emphasizes the consistent recognition and application of ethical principles throughout the corporate decision-making process.	<ul style="list-style-type: none"> ● Management accountant professional ethics ● Organizational ethics ● Decision-making strategy
CA—Cost Accounting/Advanced Managerial Accounting	An intermediate-level course covering the managerial use of accounting data to assist managers in their plans and decisions regarding resource allocation, organizational control, and performance evaluation.	<ul style="list-style-type: none"> ● Budgeting and planning (master budget) ● Control and performance evaluation ● Cost concepts and systems ● Overhead allocation ● Activity-based costing ● Standard costs and variance analysis ● Responsibility accounting ● Balanced scorecard ● Cost-volume-profit (CVP) analysis ● Marginal analysis (e.g., relevant costs) ● Make vs. buy decisions ● Pricing decisions and cost management

CAP—Business Capstone	Policy formulation and strategic decision making from the viewpoint of top-level management.	<ul style="list-style-type: none"> ● Integration of business disciplines ● Strategic management processes ● Strategic planning and decision making
CF—Corporate Finance	Introduces the theory, methods, and concerns of corporate finance.	<ul style="list-style-type: none"> ● Risk and return ● Portfolio management ● Financial instruments ● Cost of capital ● Capital structuring ● Raising capital and capital budgeting ● Discounted cash flow concepts—net present value (NPV), internal rate of return (IRR) ● Nondiscounted analysis ● Ranking investment projects
FA—Financial Accounting	A fundamentals course introducing the basic financial accounting principles and concepts used to prepare financial statements for a business enterprise.	<ul style="list-style-type: none"> ● Types of business organizations ● Financial statement type, purpose, preparation, and analysis ● The accounting cycle ● Analyzing and recording business transactions ● Revenue, expense, asset, and liability concepts ● Merchandising operations and inventory ● Historical cost vs. fair value accounting ● Working capital concepts ● Earnings quality ● Cash flow statement preparation and analysis
INT—Intermediate Accounting	An intermediate financial accounting course with in-depth focus on asset, liability, and owners' equity measurement; revenue determination, timing, and recognition; and financial statement preparation, presentation, and analysis.	<ul style="list-style-type: none"> ● Financial statement purpose, preparation, and analysis ● Financial statement limitations ● Asset, liability, and equity account analysis ● Fair value accounting ● IFRS vs. U.S. GAAP and other international issues ● Cash flow statement preparation and analysis ● Ratio analysis ● Earnings quality ● Valuation methods ● Financial instruments ● Dividend policy ● Pensions and post-retirement benefits ● Capital leases ● Revenue recognition and measurement
INV—Investments	A survey course that analyzes, measures, and values stocks, bonds, and other investment products.	<ul style="list-style-type: none"> ● Market participation ● Efficient markets ● Financial instruments: fixed income and equity ● Financial markets: fixed income and equity ● Derivatives ● Futures and options ● Mutual funds ● Financial investment valuation ● Portfolio management ● International investments and markets ● Risk analysis in capital budgeting ● Risk assessment ● Valuation methods

MA—Managerial Accounting	A fundamentals course designed to develop managerial decision-making skills to plan, control, and measure production costs.	<ul style="list-style-type: none"> ● Cost concepts, terminology, and measurement ● Budgeting, planning, and controlling costs ● Activity-based and other cost management concepts ● Performance evaluation and balanced scorecard ● Cost allocation ● Standard costs and variance analysis ● CVP analysis ● Marginal analysis (relevant costing) ● Discounted cash flow concepts ● Capital budgeting tools (NPV, IRR) ● Nondiscounted analysis ● Ranking investment projects
MIE—Microeconomics	An introductory course providing a thorough understanding of economic principles for individual decision makers, both consumers and producers, within the larger economic system.	<ul style="list-style-type: none"> ● Nature and functions of product markets ● Marginal analysis (relevant costs) ● Pricing ● Government's role in promoting efficiency and equity in the economy
OP—Operations Management	An intermediate management course that examines problems encountered in planning, operating, and controlling the production of goods and services.	<ul style="list-style-type: none"> ● Business process control and performance evaluation ● Production systems ● Competition, strategy, and productiveness ● Forecasting ● Product and service design ● Strategic capacity ● Quality control ● Capacity and facilities management ● Inventory management ● Just-in-Time (JIT) inventory ● Six Sigma ● Resource allocation ● Theory of Constraints ● Logistics ● Supply chain management ● Scheduling ● Project management ● Balanced scorecard ● Operational efficiencies
QA—Quantitative Analysis/Analytics/Statistics	Introduces quantitative methods and their business applications.	<ul style="list-style-type: none"> ● Displaying and exploring data ● Probability analysis and concepts ● Forecasting ● Statistical sampling methods ● Linear and nonlinear programming ● Analysis of variance ● Common data analytics techniques
TAX—Federal Income Taxation	Introduces and develops a basic understanding of federal income tax law and its effects on income, tax planning, and other business decisions.	<ul style="list-style-type: none"> ● Tax implications for operational decisions ● Tax implications for investment decisions ● Tax implications for individual and entity type (C corporation, S corporation, LLC, etc.) ● Measurement of income and expense ● IRS tax code

Appendix 2: Typical Graduate Course Descriptions

Course	Course Description	Typical Course Content (Topics covered on CMA exam are in bold.)
AIS—Accounting Information Systems	Undergrad prerequisite (see undergraduate listing).	<ul style="list-style-type: none"> ● Internal control risk assessment ● AIS controls ● COBIT ● Enterprise risk management ● IT governance ● Business processes ● Systems development life cycle
AM—Accounting for Managers	Introduces accounting concepts and accounting system operating characteristics. Course focus is on the use of financial and managerial accounting information for decision-making purposes.	<ul style="list-style-type: none"> ● Financial statement analysis and interpretation ● Fair value accounting ● IFRS vs. U.S. GAAP and other international issues ● Cash flow statement preparation and analysis ● Earnings quality ● CVP analysis ● Marginal analysis ● Tax implications for operational decisions ● Pricing ● Ethical considerations for the organization ● Risk assessment ● Internal control environment ● Internal auditing and types of audits
AUD—Auditing	Undergrad prerequisite (see undergraduate listing).	<ul style="list-style-type: none"> ● Risk assessment (the entity, its environment, and internal control) ● Materiality and risk (types and measures) ● Types of audits and reports ● AIS controls ● Evidence type and quality ● Audit, attestation, and quality control standards ● Professional ethics and legal liability ● Management assertions and audit evidence
BLE—Business/Legal/Ethics/Corporate Governance	Examines and evaluates the legal environment and ethical challenges facing management in order to enhance corporate accountability, foster an ethical work environment, ensure legal compliance, and provide effective leadership within the organization.	<ul style="list-style-type: none"> ● Ethical considerations for management, the organization, and accounting professionals ● Ethical theory, principles, and application ● Corporate ethics consistency ● Corporate governance

CA—Cost Accounting/Advanced Managerial Accounting	Undergrad prerequisite (see undergraduate listing) or elective.	<ul style="list-style-type: none"> ● Budgeting and planning (master budget) ● Control and performance evaluation ● Cost concepts and systems ● Overhead allocation ● Standard costs and variance analysis ● Responsibility accounting ● Balanced scorecard ● CVP analysis ● Marginal analysis (e.g., relevant costs) ● Make vs. buy decisions ● Pricing ● Business process performance
CF—Corporate Finance/Financial Management	Introduces the theory, methods, and applications of corporate finance. Emphasis is placed on the development of problem-solving skills for the business manager.	<ul style="list-style-type: none"> ● Capital budgeting concepts, planning process ● Forecasting ● Flexible budgets, control, and performance evaluation factors ● Financial statement purposes, interpretations, and limitations ● Fair value accounting ● Earnings quality ● Risk (types, measures, assessment, and analysis) ● Portfolio management ● Financial instruments ● Cost of capital ● Working capital management ● Raising capital and capital structure ● Mergers and acquisitions ● Dividend policy ● International finance ● CVP analysis ● Marginal analysis ● Tax implications for operational and investment decisions
ECO—Economic Analysis (Micro/Macro)	Introduces the economic decisions companies must make regularly. Emphasis is on market structure, industrial performance, strategic interaction, and individual market behavior.	<ul style="list-style-type: none"> ● Individual market behavior ● Producer/consumer analysis ● Cost analysis ● Market demand ● Individual demand ● Pricing strategy ● Market power ● Government regulation
FA—Financial Accounting	Undergrad prerequisite (see undergraduate listing).	<ul style="list-style-type: none"> ● Types of business organization ● Financial statement type, purpose, preparation, and analysis ● The accounting cycle ● Analyzing and recording business transactions ● Revenue, expense, asset, and liability concepts ● Merchandising operations and inventory ● Historical cost vs. fair value accounting ● Working capital concepts ● Earnings quality ● Cash flow statement preparation and analysis

FSA—Financial Statement Analysis	An intermediate course using financial statements to analyze the quality of reported earnings and predict a company's value.	<ul style="list-style-type: none"> ● Internal auditing and types of audits ● Financial statement purposes and limitations ● Financial statement interpretation ● Fair value accounting ● Cash flow analysis ● Earnings quality ● Dividend policy ● Tax implications for operational and investment decisions ● Capital investment risk analysis ● Valuation methods
IA—Intermediate Accounting	Undergrad prerequisite (see undergraduate listing).	<ul style="list-style-type: none"> ● Financial statement purpose, preparation, and analysis ● Financial statement limitations ● Asset, liability, and equity account analysis ● Fair value accounting ● IFRS vs. U.S. GAAP and other international issues ● Cash flow statement preparation and analysis ● Earnings quality ● Valuation methods ● Financial instruments ● Dividend policy ● Pensions and post-retirement benefits ● Capital leases ● Revenue recognition and measurement
IB—International Business	Emphasizes economic analysis of the forces driving international business. It equips managers with a comprehensive framework to formulate objectives and strategies for global operations.	<ul style="list-style-type: none"> ● Competitive advantages ● Competitive strategies ● Alternative modes of market entry ● Intermediary import and export ● Foreign suppliers and distributors ● Foreign direct investment (FDI)
IF—International Finance	Analyzes the international financial environment with an emphasis on foreign exchange markets and financial management.	<ul style="list-style-type: none"> ● Foreign exchange risk: measurement and management ● Foreign exchange investment, hedging, speculation, and arbitrage ● Currency futures, forwards, and options ● Optimal short- and long-term borrowing and investment decision making ● Multinational corporate cost of capital and capital budgeting ● Country debt ● Exchange rate fluctuation ● Forecasting foreign exchange rates
ITL—International Accounting	Provides a broad-based understanding of the international dimensions of accounting standards, transactions, and financial statements.	<ul style="list-style-type: none"> ● IFRS vs. U.S. GAAP and other international issues ● International corporate governance ● International taxation and transfer pricing ● Foreign currency transactions, hedging, and risk ● Foreign currency financial statement translation ● Strategic accounting issues of multinational companies

INV—Investments	An in-depth course on portfolio theory, risk analysis, strategy, and market application for equities, fixed-income securities, options, and other investment products.	<ul style="list-style-type: none"> ● Market participation ● Efficient markets ● Financial instruments: fixed income and equity ● Financial markets: fixed income and equity ● Derivatives ● Futures and options ● Mutual funds ● Financial investment valuation ● Portfolio management ● International investments and markets ● Risk analysis in capital budgeting ● Risk assessment ● Valuation methods
IT—Managing Information Technology	Introduces information systems fundamentals, tools, and techniques necessary to operate effectively in a computerized business environment.	<ul style="list-style-type: none"> ● Information systems (IS) business systems ● IS concepts ● Strategy ● System and application software ● Database management ● Data resource management ● IS development ● Security management ● Enterprise business systems
MA—Managerial Accounting	Undergrad prerequisite (see undergraduate listing).	<ul style="list-style-type: none"> ● Cost concepts, terminology, and measurement ● Budgeting, planning, and controlling costs ● Activity-based and other cost management concepts ● Performance evaluation and balanced scorecard ● Cost allocation ● Standard costs and variance analysis ● CVP analysis ● Marginal analysis (relevant costing) ● Discounted cash flow concepts ● Capital budgeting tools (NPV, IRR) ● Nondiscounted analysis ● Ranking investment projects
MCS—Management Control Systems	An advanced course focusing on management design, implementation, strategy, and use of planning and control systems.	<ul style="list-style-type: none"> ● Control environment ● Organizational strategy and behavior ● Responsibility centers: revenue, expense, and profit ● Transfer pricing ● Measuring and controlling assets and costs ● Strategic planning ● Budgets ● Performance measurement ● Balanced scorecard ● Management compensation ● Corporate governance ● Ethical models
MKT—Marketing Management	An intermediate course examining the management of marketing operations and systems.	<ul style="list-style-type: none"> ● Market opportunities ● Market strategy and planning ● Market mix, segmentation, targeting, and position ● Buyer behavior ● Customer resource management ● Market channels and supply chain

OB—Organizational Behavior	Provides an overview of issues, problems, and theories of human behavior at work.	<ul style="list-style-type: none"> ● Organizational culture ● Leadership ● Motivation and participation ● Teamwork ● Career issues ● Job enrichment ● Work design
OP—Operations Management	Introduces the efficient production of goods and services by analyzing processes, ensuring quality, creating value, and managing the flow of information and products along the supply chain.	<ul style="list-style-type: none"> ● Business process control and performance evaluation ● Production systems ● Competition, strategy, and productiveness ● Forecasting ● Product and service design ● Strategic capacity ● Quality control ● Capacity and facilities management ● Inventory management ● JIT inventory ● Six Sigma ● Resource allocation ● Theory of Constraints ● Logistics ● Supply chain management ● Scheduling ● Project management ● Balanced scorecard ● Operational efficiencies
QA—Quantitative Analysis/ Analytics/Statistics	Introduces quantitative methods and their business applications.	<ul style="list-style-type: none"> ● Displaying and exploring data ● Probability analysis and concepts ● Forecasting ● Statistical sampling methods ● Linear and nonlinear programming ● Analysis of variance ● Common data analytic techniques
SEC—Securities, Markets, and Financial Institutions	Introduces the structure and functions of money and capital markets, saving investment processes, financial intermediaries, interest rates, and the supply and demand for loanable funds.	<ul style="list-style-type: none"> ● Financial markets ● Financial institutions ● Monetary policy ● Financial instruments ● Money, stock, bond, and mortgage markets ● Foreign exchange and the international financial system ● Interest rates and valuation ● Risk management
SM—Strategic Management	Integrates prior business courses and focuses on corporate and divisional policy, organizational change, competition, and strategic decision making.	<ul style="list-style-type: none"> ● Crafting and executing strategy ● Evaluating a company's external environment, resources, and competitive position ● Organizational objectives and structure ● Diversification ● Competitive strategy ● Foreign market strategy ● Ethical strategies ● Corporate culture and leadership ● Vertical integration ● Strategic alliances ● Mergers and acquisitions

TAX—Income Tax Accounting	Undergrad prerequisite (see undergraduate listing).	<ul style="list-style-type: none">● Tax implications for operational decisions● Tax implications for investment decisions● Tax implications for individual and entity type (C corporation, S corporation, LLC, etc.)● Measurement of income and expense● IRS tax code
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