

**Business M733  
Marketing Analytics Course Outline  
Winter 2020**

**PRESENTED IN A BLENDED LEARNING COURSE FORMAT**

**Marketing @ DeGroote School of Business, McMaster University**

**Course Objective**

Some key words heard frequently in marketing departments today are data science, analytics, informatics, bio-informatics, algorithmics, big data and data mining. Great marketing decisions are typically based on the sophisticated analysis of timely in-depth consumer, competitor and environmental information. Students in Marketing Analytics will get hands-on experience with the tools used by the most advanced marketing consultants and large successful marketers. We'll study data mining, marketing segmentation, visualization of findings, predictive analytics, key marketing models, social media research, text analytics, big data and more through discussions, cases and projects. Students will learn how to use the software that they will encounter when conducting marketing analyses in business.

**Prerequisites:** M650 or equivalent and I602 or equivalent. **Good statistical understanding is essential.**

**Instructor and Contact Information**

**Dr. Ken Deal, MBA, PhD, CMRP, FMRIA**

Professor of Marketing

[deal@mcmaster.ca](mailto:deal@mcmaster.ca)

Residencies in RJC 427, 9am to 4pm

Office: RJC #254 ,

Online Office Hours: Tuesdays 9am – 10am via Zoom

Tel: (905) 525-9140 x27430

**TA: Dr. Ana Gabrielyan**

[anaitgabrielyan@gmail.com](mailto:anaitgabrielyan@gmail.com)

**Course Website:** <http://avenue.mcmaster.ca>

**Course Elements**

<b>Avenue:</b>	<b>Yes</b>	Leadership:	Yes	IT skills:	Yes	Global view:	Yes
Participation:	Yes	Ethics:	Yes	<b>Numeracy:</b>	<b>Yes</b>	Written skills:	Yes
Evidence-based:	Yes	Innovation:	Yes	Group work:	Yes	Oral skills:	Yes
Experiential:	Yes	Guest speaker(s):	Yes	Final Exam:	Oral	<b>BLENDED:</b>	<b>YES</b>

**NB,** we will be using software in this course that may not work well or at all with Apple computers. Assistance with Apple computers will be limited. Make your life easier by using a Windows-based PC or install the parallel Windows system in your Apple.

## Course Description

You've heard about the "Tipping Point". Well, that is has occurred in marketing analytics. Welcome to the show. The public used to hear about selling and advertising and very little else about marketing. Now the core of what we do is in the media daily – predictive analytics, segmentation, big data, social media, text analytics. Some are construing this as threats to our privacy – and we must be diligent to protect our identities. However, much of this new movement in marketing analytics is focused on understanding consumers' sentiments and behaviours so that better marketing decisions can be made to grow business and that only happens when consumers get more of what they want.

Marketing Analytics M733 will introduce you to the concepts of marketing analytics, assist you to better understand how marketing analytics can be used for improving marketing decisions and will continue your education in analysis so that you can contribute to the development of marketing insights. You will be exposed to many influential Canadian contributors to marketing analytics and to projects that will expand your expertise in this valuable arena.

## Learning Outcomes

Upon completion of this course, you will have had the opportunity and training to:

- ✓ Understand the needs of marketing managers for marketing intelligence;
- ✓ Determine and react to the objectives set for marketing analytics projects;
- ✓ Identify the type of analyses that will best help achieve the objectives;
- ✓ Understand the meaning and value of big data and social media analytics;
- ✓ Appreciate the basics of R, the most pervasive analytics tool, and methods that use R;
- ✓ Understand how to manage and execute marketing analytics projects;
- ✓ Learn how to prepare data for analysis;
- ✓ Determine how to best analyze diverse types of data;
- ✓ Learn how to turn statistical findings into marketing information that gets attention.

## Required Course Materials and Readings

- Chapman, Chris and Elea McDonnell Feit, *R for Marketing Research and Analytics*, Springer, 2019 (bookstore). This is an excellent book on using R for marketing analytics and marketing research. This book will be used in parallel to much of the course. Some topics will not be covered in class and several topics that will be covered in class are not in this book.
- Fox, John (2017). *Using the R Commander: A Point-and-Click Interface for R*. Boca Raton, Florida: CRC Press.
- Rodrigues, Bruno (2019). *Modern R with the tidyverse*. You can buy this book from [https://leanpub.com/modern\\_tidyverse](https://leanpub.com/modern_tidyverse) , or you can read the book online for free: [https://b-rodrigues.github.io/modern\\_R/](https://b-rodrigues.github.io/modern_R/).
- R, RStudio, R Commander (all open source and free)
- Gandomi, Amir and Murtaza Haider (2015). "Beyond the hype: Big data concepts, methods, and analytics", *International Journal of Information Management* 35 (2015) 137-144. (in Avenue)

- Please do not communicate with others electronically during residencies and stay off the internet unless it is for class reasons. **Keep your laptops closed during guest speaker visits.**

## Evaluation

### Teaching Method

The main learning platform in this course will be three (synchronous) face-to-face residencies that will include topic presentations, class discussions and guest speakers, asynchronous content videos accompanied by PowerPoint decks, four major assignments, synchronous webinars, intra-course chats and a term project. Residencies will consist of lectures, workshops and guest speakers and will be held on Jan 18, Feb 29 and March 28th. Webinars will introduce topics, elaborate and reinforce the course notes provided in Avenue and discuss your assignments and projects. The videos will introduce, discuss and provide examples of all course material and will be backed up by PowerPoint decks and/or R Markdown documents.

Four major assignments will be required during the term. They must be conducted individually and any cheating will be considered serious violations of academic dishonesty and dealt with accordingly. All work will be evaluated on an individual basis except in certain cases where group work is expected.

The groups for the term projects will be comprised of 3 people whenever possible. Group members will share the same grade for the term project, adjusted by peer evaluation. The term project presentations will be on April 17<sup>th</sup> (date approximate) during a residency that will last about 5 hours. **All students are required to attend the full session.**

Your final grade will be calculated as follows:

### Components and Weights

<b>Assignments</b>	4 assignments, due throughout the term	50%
<b>Term projects</b>	Assigned by the 6 <sup>th</sup> week, presented during scheduled final exam. (90% analysis and report, 10% presentation)	50%
<b>Total</b>		100%

**NB: attendance at all residencies are required. Absence will result in course failure automatically.**

### Grade Conversion

At the end of the course your overall percentage grade will be converted to your letter grade in accordance with the following conversion scheme.

LETTER GRADE	PERCENT	POINTS
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A+	90 - 100	12
A	85 - 89	11
A-	80 - 84	10
B+	75 - 79	9
B	70 - 74	8
B-	60 - 69	7
F	00 - 59	0

## Communication and Feedback

Students that are uncomfortable in directly approaching an instructor regarding a course concern may send a confidential and anonymous email to the respective Area Chair or Associate Dean:

<http://mbastudent.degroote.mcmaster.ca/contact/anonymous/>

Students who wish to correspond with instructors or TAs directly via email must send messages that originate from their official McMaster University email account. This protects the confidentiality and sensitivity of information as well as confirms the identity of the student. Emails regarding course issues should NOT be sent to the Administrative Assistant.

Instructors are encouraged to conduct an informal course review with students by Week #4 to allow time for modifications in curriculum delivery. Instructors should provide evaluation feedback for at least 10% of the final grade to students prior to Week #8 in the term.

## Assignments

There will be four major assignments during the term. These will constitute 50% of your final mark. These assignments must be done **by each individual student** without help from others and submitted to the Avenue Drop Box when required. The assignments will be scrutinized for cheating and appropriate steps will be taken if collaboration is discovered. Each assignment must be placed in the appropriate Avenue Drop Box by the required time and date. The Avenue dropbox will close at the prescribed time. Late assignments will receive grades of zero. This is a marketing + analytics course, i.e., the analysis must be done correctly and to the proper extent and the results must be interpreted to support better marketing decisions. The lack of either of these two essential components will cause reduction in grades. Feedback will be provided through Avenue.

## Midterm

There will be no midterms.

## Term Projects

The term projects will be focused on providing commercial grade experiences in marketing analytics. These projects will be assigned to teams and it is expected that each team member contribute appropriately and equally to the end result. There will be a vehicle for adjusting grades if a team member were to not participate adequately. The term projects will be presented orally during the scheduled final exam period for

this course. Essentially, these will be the final exams. The topics for the projects may be contributed by the guest speakers.

### Final Marks in M733

A passing mark in M733 indicates that the professor attests that the student has at least an adequate proficiency in marketing analytics and should be able to contribute to the analytical functions of the marketing department of an organization. If the professor is not able to attest to this achievement, the student will receive a grade of F.

## Academic Dishonesty

It is the student's responsibility to understand what constitutes academic dishonesty. Please refer to the University Senate Academic Integrity Policy at the following URL:

<http://www.mcmaster.ca/univsec/policy/AcademicIntegrity.pdf>

This policy describes the responsibilities, procedures, and guidelines for students and faculty should a case of academic dishonesty arise. Academic dishonesty is defined as to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. Please refer to the policy for a list of examples. The policy also provides faculty with procedures to follow in cases of academic dishonesty as well as general guidelines for penalties. For further information related to the policy, please refer to the Office of Academic Integrity at:

<http://www.mcmaster.ca/academicintegrity>

## Copyright

McMaster University has signed a license with the Canadian Copyright Licensing Agency (Access Copyright) which allows professors, students, and staff to make copies allowed under *fair dealing*. Fair dealing with a work does not require the permission of the copyright owner or the payment of royalties as long as the purpose for the material is private study, and that the total amount copied equals **NO MORE THAN 10 percent** of a work or an entire chapter which is less than 20 percent of a work. In other words, it is illegal to: i) copy an entire book, or ii) repeatedly copy smaller sections of a publication that cumulatively cover over 10 percent of the total work's content. Please refer to the following copyright guide for further information:

<http://library.mcmaster.ca/about/copying.pdf>

## Missed Academic Work

***Missed Mid-Term Examinations / Tests / Class Participation***

Where students miss a regularly scheduled mid-term or class participation for legitimate reasons as determined by the MBA Academic Services Office, the weight for that test/participation will be distributed across other evaluative components of the course at the discretion of the instructor. Documentation explaining such an absence must be provided to the MBA Academic Services Office within five (5) working days upon returning to school.

To document absences for health related reasons, please provide the Petition for Relief for MBA Missed Term Work and the McMaster University Student Health Certificate which can be found on the DeGroot website at <http://mbastudent.degroot.mcmaster.ca/forms-and-applications/>. Please do not use the online McMaster Student Absence Form as this is for Undergraduate students only. University policy states that a student may submit a maximum of three (3) medical certificates per year after which the student must meet with the Director of the program.

To document absences for reasons other than health related, please provide the Petition for Relief for MBA Missed Term Work and documentation supporting the reason for the absence.

Students unable to write a mid-term at the posted exam time due to the following reasons: religious; work-related (for part-time students only); representing university at an academic or varsity athletic event; conflicts between two overlapping scheduled mid-term exams; or other extenuating circumstances, have the option of applying for special exam arrangements. Such requests must be made to the MBA Academic Services Office at least ten (10) working days before the scheduled exam along with acceptable documentation. Instructors cannot themselves allow students to unofficially write make-up exams/tests. Adjudication of the request must be handled by the MBA Academic Services Office.

If a mid-term exam is missed without a valid reason, students will receive a grade of zero (0) for that component.

### ***Missed Assignments***

**Failure to submit any assigned material** at the designated due time to the appropriate Avenue folder **without a formal release** due to one of the excuses noted above **will result in a grade of zero**.

There will be formal **peer evaluations of teamwork** with corresponding reductions in marks if deemed necessary by the professor.

### ***Missed Final Examinations (Term Project Presentations)***

A student who misses a final examination without good reason will receive a mark of 0 on the examination. All applications for deferred and special examination arrangements must be made to the MBA Academic Services Office. Failure to meet the stated deadlines may result in the denial of these arrangements. Deferred examination privileges, if granted, must be satisfied during the examination period at the end of the following term. There will be one common sitting for all deferred exams.

Failure to write an approved deferred examination at the pre-scheduled time will result in a failure for that examination, except in the case of exceptional circumstances where documentation has been provided and approved. Upon approval, no credit will be given for the course, and the notation N.C. (no credit) will be placed on the student's transcript. Students receiving no credit for a required course must repeat the course. Optional or elective courses for which no credit is given may be repeated or replaced with another course of equal credit value.

Requests for a second deferral or rescheduling of a deferred examination will not be considered.

Any student who is unable to write a final examination because of illness is required to submit the Application for Deferred MBA Final Examination and a statement from a doctor certifying illness on the date of the examination. The Application for Deferred MBA Final Examination and the McMaster University Student Health Certificate can be found on the DeGroote website at <http://mbastudent.degroote.mcmaster.ca/forms-and-applications/> Please do not use the online McMaster Student Absence Form as this is for Undergraduate students only. Students who write examinations while ill will not be given special consideration after the fact.

In such cases, the request for a deferred examination privilege must be made in writing to the MBA Academic Services Office within five business days of the missed examination.

Special examination arrangements may be made for students unable to write at the posted exam time due to compelling reasons (for example religious, or for part-time students only, work-related reasons):

- Students who have religious obligations which make it impossible to write examinations at the times posted are required to produce a letter from their religious leader stating that they are unable to be present owing to a religious obligation.
- Part-time students who have business commitments which make it impossible to write examinations at the times posted are required to produce a letter on company letterhead from the student's immediate supervisor stating that they are unable to be present owing to a specific job commitment.

In such cases, applications must be made in writing to the MBA Academic Services Office at least ten business days before the scheduled examination date and acceptable documentation must be supplied.

If a student is representing the University at an academic or athletic event and is available at an overlapping scheduled time of the test/examination, the student may write the test/examination at an approved location with an approved invigilator, as determined by the MBA Academic Services Office.

In such cases, the request for a deferred examination privilege must be made in writing to the MBA Academic Services Office within ten business days of the end of the examination period.

Note: A fee of \$50 will be charged for a deferred exam written on campus and a fee of \$100 for deferred exams written elsewhere. In cases where the student's standing is in doubt, the Graduate Admissions and Study Committee may require that the student with one or more deferred examination privileges refrain from re-registering until the examination(s) have been cleared.



## Student Accessibility Services

Student Accessibility Services (SAS) offers various support services for students with disabilities. Students are required to inform SAS of accommodation needs for course work at the outset of term. Students must forward a copy of such SAS accommodation to the instructor normally, within the first three (3) weeks of classes by setting up an appointment with the instructor. If a student with a disability chooses NOT to take advantage of an SAS accommodation and chooses to sit for a regular exam, a petition for relief may not be filed after the examination is complete. The SAS website is:

<http://sas.mcmaster.ca>

## Potential Modifications to the Course

The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.

## Research Using Human Subjects

Research involving human participants is premised on a fundamental moral commitment to advancing human welfare, knowledge and understanding. As a research intensive institution, McMaster University shares this commitment in its promotion of responsible research. The fundamental imperative of research involving human participation is respect for human dignity and well-being. To this end, the University endorses the ethical principles cited in the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans:

<http://www.pre.ethics.gc.ca>

McMaster University has mandated its Research Ethics Boards to ensure that all research investigations involving human participants are in compliance with the Tri-Council Policy Statement. The University is committed, through its Research Ethics Boards, to assisting the research community in identifying and addressing ethical issues inherent in research, recognizing that all members of the University share a commitment to maintaining the highest possible standards in research involving humans.

If you are conducting original research, it is vital that you behave in an ethical manner. For example, everyone you speak to must be made aware of your reasons for eliciting their responses and consent to providing information. Furthermore, you must ensure everyone understands that participation is entirely voluntary. Please refer to the following website for more information about McMaster University's research ethics guidelines:

<http://www.mcmaster.ca/ors/ethics>

Organizations that you are working with are likely to prefer that some information be treated as confidential. Ensure that you clarify the status of all information that you receive from your client. You **MUST** respect this



request and cannot present this information in class or communicate it in any form, nor can you discuss it outside your group. Furthermore, you must continue to respect this confidentiality even after the course is over.

Episode	Topic	#	Content	Schedule	Webinars	Web Date
Pre-Residency 1	Intro.	1	Brief introduction to marketing analytics	11-Jan-20		
		2	How will this course operate?	11-Jan-20		
	Technical course preparation	3	Technical course preparation 1 -- installing R	11-Jan-20		
		4	Technical course preparation 2 -- installing R Studio	11-Jan-20		
		5	Technical course preparation 3 -- installing R packages	11-Jan-20		
		6	Technical course preparation 4 -- installing R Commander	11-Jan-20		
		7	Technical course preparation 5 -- R Markdown	11-Jan-20		
	Review		Review of Statistics	11-Jan-20		
	Marketing strategy	8	Marketing strategy & marketing analytics	11-Jan-20		
		9	The research process	11-Jan-20		
	Technical basics	10	Using the basics of R	11-Jan-20		
		11	Data sources and types	11-Jan-20		
		12	Exploratory Data Analysis	11-Jan-20		
		13	What should we do with missing values?	18-Jan-20		
	Predictive analytics	14	Reshaping datasets	18-Jan-20		
		15	Predictive Analytics 1: Introduction & Simple linear regression	18-Jan-20		
		16	Predictive Analytics 2: Regression on categorical predictors	18-Jan-20	Webinar 1	17jan20 @ 10am
		17	Predictive Analytics 1: Multiple linear regression	25-Jan-20		
		18	Predictive Analytics 2: Logistic regression	25-Jan-20		
19		Predictive Analytics 3: Classification and Regression Trees	25-Jan-20			
Residency 1			Residency 1, RJC 427	24jan20, 9am - 4pm		
Post-Residency 1	Predictive analytics	20	Predictive Analytics 4: Package h2o.ai	01-Feb-20		
		21	Predictive Analytics 5: Neural networks	01-Feb-20		
		22	Predictive Analytics 6: Deep Learning	01-Feb-20		
Pre-Residency 2	Communication & Visualization	23	Communication and Visualization 1: graphing with ggplot2	01-Feb-20		
		24	Communication and Visualization 2: graphing with plotly	01-Feb-20		
		25	Communication and Visualization 3: R Markdown in more detail	08-Feb-20		
		26	Communication and Visualization 4: shiny	08-Feb-20		
		27	Communication and Visualization 5: flexdashboard	08-Feb-20		
		28	Communication and Visualization 6: html widgets	08-Feb-20		
		29	Communication and Visualization 7: other plotting	08-Feb-20	Webinar 2	07feb20 @ 10am
		30	Communication and Visualization 8: correspondence analysis	15-Feb-20		
		31	Communication and Visualization 9: principal component analysis	15-Feb-20		
	32	Communication and Visualization 10: other methods	15-Feb-20			
	Marketing Segmentation	33	Marketing segmentation: a marketing strategy	29-Feb-20		
34		Marketing segmentation: an analytics tool	29-Feb-20			
35		Marketing segmentation methods, a 2-level approach	29-Feb-20			
36		Marketing segmentation, R-code for Firestone segmentation (Level 1)	29-Feb-20			
Residency 2			Residency 2, RJC 427	28feb20, 9am - 4pm		
Post-Residency 2	Marketing Segmentation	37	Marketing segmentation, R-code for Firestone segmentation (Level 2)	07-Mar-20		
		38	Marketing segmentation, describing and visualizing the segments	07-Mar-20	Webinar 3	06mar20 @ 10am
		39	Marketing segmentation, EA mobile segmentation	14-Mar-20		
		40	Marketing segmentation, mapping segment members on Ontario map	14-Mar-20		
		41	Marketing segmentation for RBCI project	14-Mar-20		
Pre-Residency 3	Social Media & Text Analytics	42	Social media and text analytics, value to marketing	21-Mar-20		
		43	Social media and text analytics, background, methods, packages	21-Mar-20		
		44	Social media and text analytics, scraping from websites ShowBiz	21-Mar-20		
		45	Social media and text analytics, text analysis	21-Mar-20		
Residency 3			Residency 3, RJC 427	20mar20, 9am - 4pm		
Post-residency 3	Social Media & Text Analytics	46	Social media and text analytics, visualizing text analysis	28-Mar-20		
		47	Social media and text analytics, scraping data from websites	28-Mar-20		
		48	Social media and text analytics, web scraping w SelectorGadget	28-Mar-20	Webinar 4	27mar20 @ 10am
		49	Social media and text analytics, web scraping from Twitter	04-Apr-20		
		50	Social media and text analytics, web scraping from Facebook	04-Apr-20		
		51	Social media and text analytics, web scraping from other sites	04-Apr-20		
Final Exam			TERM PROJECT PRESENTATIONS, RJC 427	17apr19, 9am to 2pm		

## Career Profile

**Dr. Ken Deal, M.B.A., Ph.D., CMRP, FMRIA**  
**Professor of Marketing, DeGroote School of Business, McMaster University**

### Areas of Expertise

Ken's expertise lies in the area of using sophisticated marketing analytics and marketing research to provide significant insights that help organizations build and enhance marketing strategies. He has developed marketing models to assess the potential of new products, evaluate the effectiveness of advertising and to enhance marketing decisions in a variety of management areas. Ken has substantial experience in the health sector, pharmaceutical research, energy sector, telecommunications, tourism, aviation industry, financial services, automotive parts and service, government services, environmental issues, packaged goods, retail grocery and others.

Dr. Deal has provided expert testimony to the Federal Court of Canada, the Superior Court of Ontario, the Supreme Court of Ontario, U.S. courts and professional tribunals and has advised several government departments on strategy and their markets.

He has presented executive seminars in strategic marketing for private, public and non-profit sectors, in marketing research, pricing and in other topics. Ken is an active teacher, researcher and practitioner in marketing research, marketing modeling, marketing management and strategy.

### Professional Activities

Dr. Deal's most recent book *Modern Marketing Research: Step by Step* was co-authored with Chuck Chakrapani and was revised in 2010 as an e-book. *Marketing Research: Methods and Canadian Practice*, again co-authored with Chakrapani, was published in April 1992 by Prentice-Hall. Ken also wrote *A Guide to PASW (SPSS) Statistics 18* and is available as an internet book. These books add to Dr. Deal's other publications that have appeared in a variety of professional and academic journals.

Dr. Deal was Chairman of Strategic Market Leadership and Health Services Management at McMaster University from 1998 to 2007, a position he held from 1982 to 1986 and was acting chair of Strategic Management in 2012/13 and acting chair of marketing in 2019. He served as President of the Canadian Survey Research Council in 2000/2001, President of the Professional Marketing Research Society (now, Marketing Research and Intelligence Association, MRIA) in 1998/1999. Ken was elected Lifetime Fellow of the Professional Marketing Research Society (FMRIA) in 2000 for "his outstanding contributions to marketing research in Canada". He has been a professor of marketing in McMaster University's DeGroote School of Business since 1973. Dr. Deal is president of marketPOWER research inc. and is a Certified Marketing Research Professional (CMRP).

**Business M733 – Marketing Analytics, 2020**

**Project Team # \_\_\_\_**

**Project Title:** \_\_\_\_\_

**Project Leader:** \_\_\_\_\_

**Team Members:**                      **email addresses,**                      **phone numbers**

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

**M733 in Winter 2020 -- And you are ... ?**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_

Phone: \_\_\_\_\_ email: \_\_\_\_\_

Undergraduate degree: \_\_\_\_\_

Undergraduate university: \_\_\_\_\_

McMaster MBA Stream: \_\_\_\_\_

Are you in the  Co-op programme or  Full-time programme or  Part-time programme?

Which of the following courses have you taken or are you taking currently?

Took Previously	Taking Currently	
<input type="checkbox"/>	<input type="checkbox"/>	M650
<input type="checkbox"/>	<input type="checkbox"/>	I602 → Your grade in I602 [_____]
<input type="checkbox"/>	<input type="checkbox"/>	I604
<input type="checkbox"/>	<input type="checkbox"/>	M731, Marketing Research
<input type="checkbox"/>	<input type="checkbox"/>	M732, Consumer Behaviour
<input type="checkbox"/>	<input type="checkbox"/>	M734, Strategic Marketing Analysis
<input type="checkbox"/>	<input type="checkbox"/>	M724, Innovation and New Products
<input type="checkbox"/>	<input type="checkbox"/>	K723, Data Mining and Business Intelligence
<input type="checkbox"/>	<input type="checkbox"/>	O701, Modelling and Analytics using Spreadsheets
<input type="checkbox"/>	<input type="checkbox"/>	Other statistics or analytics courses _____

Current or most recent job: \_\_\_\_\_

\_\_\_\_\_

Intended career business sector: \_\_\_\_\_

Next previous position: \_\_\_\_\_

\_\_\_\_\_