Canadian
Centre for Research
Analysis
and Methods
(CCRAM)

Navigating and participating in

Mediation, Moderation, and Conditional Process Analysis: The Complete Course
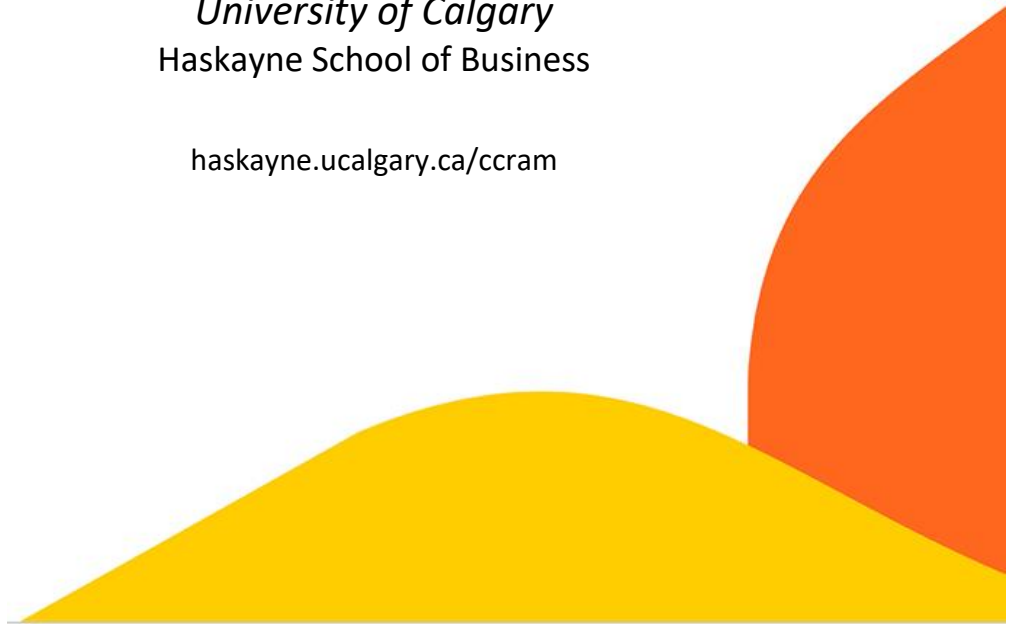
Taught online and on-demand
December 9, 2024, to April 9, 2025
by
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Welcome to "Mediation, Moderation, and Conditional Process Analysis: The Complete Course" taught online and on-demand by Andrew F. Hayes. This course officially begins on December 9, 2024, and consists of 27 pre-recorded video modules (about 30 hours of content), 13 activities, and 2 self-assessments. At any time of your choosing during the class, you can point your browser to ccram.digitalchalk.com, go to your DigitalChalk dashboard and click on the course, and then watch the videos and learn the content at a pace that is comfortable to you. **Your access to the course ends on April 9, 2025.**

In addition to the activities and videos, a large collection of course-related files is available and packaged in the form of a .zip archive. You should download this archive to your computer (look for "Course Materials" on DigitalChalk) and unpack it. Inside the archive you will find a set of folders, one for SPSS users, one for SAS users, and one for R users. Each of these folders contain subfolders, one containing some code and instructions for PROCESS and another containing data files and programs. You may also find some miscellaneous files in various locations in the archive, including a PDF of PROCESS outputs that you may want to print so that you will have full copies of the output for note taking.

The archive includes a copy of the PowerPoint slides that are the foundation of the course videos. These are in the form of a PDF file. There are three versions of this PDF, and they are password protected. **The password is mmcpa@ccram**. They are largely identical. The only differences are found on some of the slides that contain output from your program's ordinary least squares regression routine. All three versions of the slides contain SPSS, SAS, and R code for generating analyses using OLS regression as well as the PROCESS tool you have been given.

The course materials that you downloaded from DigitalChalk, such as data files and the PDF of the course slides, are yours to keep and will be available to you as long as you decide to hang on to them. However, they should not be distributed to others either in hard copy or electronic form, as all these materials are copyrighted. You will only be able to watch the videos during your access period. The videos cannot be downloaded for offline viewing.

This course is designed to be hands-on, so you are encouraged to follow along with the videos, generating output using your preferred statistical package. You can use either SPSS, SAS, or R (or all three if you want!). Syntax that conducts many of the analyses described in the course can be found in the SAS, SPSS, and R folders in a file named "mmcpa course code." Below is some information specific to users of each of these programs:

SPSS users:

The data files made available to you are in the form of SPSS data files ("sav" formatted) ready for analysis. Although most of code is provided to you that conducts the analyses in an SPSS syntax file, you are encouraged to type the commands in yourself rather than using this prepared file of code if you are not a regular syntax user. The "point-and-click" interface of SPSS is not used in this class, where analyses are set up using various dialog boxes in the SPSS menu system. Instead, all analyses will be conducted using syntax. A brief tutorial on the use of syntax

in SPSS is provided in module 1. PROCESS for SPSS works on SPSS version 26 and later. If you are using an earlier version of SPSS, please update to a newer version.

SAS users:

Data files are provided to you not in the form of SAS data files but instead as SAS programs (.sas files). When you run a SAS program (each program is named the same as the data file it generates), a temporary or "work" data file will be available in SAS's memory with the same name as the name of the SAS program that generates the data file. You should run the program that creates the data file before trying to analyze the data.

The appearance of the SAS output will depend on how your ODS (Output Delivery System) is figured on your version of SAS. As you will see on the videos and some of the documents you were given, SAS was set to produce output as ordinary text when these videos were produced. Your output may look different, but the content should all be there. See your SAS documentation for how to change SAS's output format.

PROCESS relies on requires SAS PROC IML to operate.

R users:

For R users, data files have been provided in comma-delimited form (.csv). This form can be read by most statistical packages, including R. Move all the data files to a convenient and common location on your computer. The R program that conducts all the analyses will also read these data files. As an R user, you are no doubt already familiar with how to read data files and will be able to get all of the data files read when needed. You will probably want to change the line of code toward the top of "mmcpa course code" (an R script containing most of the course code) so that the working directory is the location where you have stored the data files. Alternatively, you can choose not to change the working directory and instead, change the lines of R code where the data frames are defined so that the path points to the location where you have stored the data files.

Using DigitalChalk

You will find the DigitalChalk platform quite intuitive and easy to use. Simply click on the class icon in your dashboard to start. When you start a module, you can pause, rewind, and fast forward the video using the familiar video interface buttons. You will also find a digital notepad on which you can take notes as you work through each module. The notes will be saved automatically, and you can print them using the print icon. You will also find an icon for the discussion board on the main interface. You can scroll through discussion topics as the course evolves and post questions that everyone taking the course can see during their access period.

DigitalChalk Discussion Board

You can use the discussion board available on DigitalChalk if you would like to ask a question or make a comment. It is likely that other participants in the course will have similar questions or will be interested in the instructor's response. **Please do not post questions about your answers to course activities on the discussion board**, as there are likely some students in the course who are reading the discussion board but have not yet attempted to complete the activity. If you would rather email the instructor directly, you can do so at **andrew.hayes@ucalgary.ca.** When you do so, please state somewhere in the email that you are enrolled in this course in order to flag your email as high priority for response.

Note that the DigitalChalk discussion board allows only a few replies to a posting. So it may be necessary at times to continue a discussion by starting a new discussion thread. You can also converse more deeply with the instructor via email.

If you have questions about this course that are not specifically about content, such as billing, troubles with access, or related matters, send an email to ccram@ucalgary.ca rather than posting your questions to the discussion board.

Occasional announcements may be made through discussion board, including announcements of office hour times, so please check in on the discussion board regularly during your access period.

Open Office Hours Conducted via Zoom

At various times throughout the offering period, the instructor will announce the time of an upcoming open office hour as a bulletin on your DigitalChalk dashboard. These meetings, which will typically occur about once every week or so, will be conducted through Zoom. Invitations and the zoom link will be available in the course materials on DigitalChalk. Attendance at these open office hours is optional. During these office hours, your course instructor will be available to take any questions you might have related to the course content or anything else you would like to chat about. Note that if more than one student in the class logs into the meeting at the same time, everyone will be allowed into the meeting simultaneously, making the meeting more of a group discussion. There is no waiting room for these open office hours. As people are taking this course all over the world in different time zones, not every office hour will be scheduled at a time that is convenient to everyone enrolled in the course.

Sequencing and Pacing Yourself

The 27 modules in this course are sequenced in a way to facilitate your learning. It is strongly recommended that you progress through the course in the sequence the modules are presented in DigitalChalk, completing earlier modules before beginning later ones. However, all modules will be available to you as soon as you begin the course, so you can skip around if you so desire. If you choose to do so, recognize that PROCESS is the computational engine used

throughout this course. If you are not familiar with PROCESS, some of the content in the later modules won't make sense to you. Therefore, it is recommended that you look at module 3 before beginning any of the later modules if you intend to skip ahead.

Although you are encouraged you to work through the material at a pace comfortable to you, it is important that you engage with the content and make progress on a consistent basis. The course contains many hours of video content plus all of the activities and self-assessments, so it is easy to feel like you are falling behind as time marches on if you aren't consistent in working through the material. And you don't want to be feeling rushed in the later modules when your access time is dwindling, as some of the more complicated content is found in the later modules.

Extensions to Access

If you feel you need more time to complete the course, an additional two weeks of access can be purchased at the price of $195 CAD + 5% goods and services tax. This offer is available until one week after the course ends. After that date, you must purchase the course again at full price to continue. To purchase and extension, see the link available in your course on Digital Chalk or contact ccram@ucalgary.ca. After paying the fee (and a brief wait while our staff manually enroll you), an extension version of the course will be available in your dashboard. Because the two weeks begins the moment the extension appears in your dashboard, please wait until just before your regular access period ends before purchasing an extension.

Important information about PROCESS

Throughout the course, we will be using PROCESS to do many of the analyses, as your preferred statistical program will not be capable of doing many of the analyses that are the foundation of the methods discussed in this course without the help of PROCESS. PROCESS is a macro (or a "function" for R users), and the code to define the macro or function must first be executed before your statistical package will understand a PROCESS command. This is discussed in module 3. It is important to remember that when you define the macro by running the PROCESS code, this definition is temporary. When you quit your statistical program, it will forget what PROCESS is. You will need to run the PROCESS macro code each time you start your statistical package when you want to run a PROCESS command. If you don't do this, your program will give you an error saying it doesn't understand what "PROCESS" means. As discussed in module 3, PROCESS for R is not yet available as a package. Activate PROCESS by running the process.r script, which defines the PROCESS function.

PROCESS for SPSS is also available as a custom dialog file that can be installed permanently in your SPSS menu system. The files and instructions for doing so are available in the course files. However, we will not be using the dialog box version of PROCESS. We will speak to PROCESS using syntax rather than the PROCESS menu. Many of the features available in PROCESS cannot be accessed through the PROCESS menu.

All of us at the Canadian Centre for Research Analysis and Methods hope you enjoy the course. If you are interested in taking another course or attending our in-person Rocky Mountain Methodology Academy in July in Calgary, you can find all of CCRAM's offerings available in-person and in online format at haskayne.ucalgary.ca/CCRAM or ccramsessions.com.

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