



UNC CHARLOTTE

BELK COLLEGE *of* BUSINESS

MBAD/DSBA 6276|Strategic Business Analytics | 3 credits

Faculty: Dr. Angela Xia Liu

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Office: Friday Building 250B

Phone: (704) 687-1794 (Zoom Phone)

Course Website: Canvas (canvas.uncc.edu)

Office Hours: Monday 3:20 pm to 5pm at CCB715C or by appointment

My preferred method of contact is by email. I will respond to all emailed questions within 24 hours Mon-Fri. I do not respond to emails over the weekend.

Course Description:

This course introduces students to strategic use of business analytics, utilizing both critical thinking and statistical tools. It focuses on helping students to develop quantitative analytical skills valuable for a wide range of business fields, especially on how data analysts describe, predict, and inform business decisions. As with the new developments of information technology and advancements in analytical tools, the strategic decision making at corporate level is witnessing a shift away from intuitive decision making to data-analytics based decisions. Companies are increasingly competing on analytics and are in need for people with both managerial expertise and analytical skills. This course intends to help students develop these skills.

Focusing on consumer-related problems, this course is designed to help DSBA students with analytic skills to link quantitative analytic tools to business strategic decision making, and to help MBA students to move from qualitative to quantitative decision making. This course will assist all students in expanding their professional and academic abilities in consumer-related topics. It not only introduces students to a variety of business decision models, but also teaches them how to estimate these models using statistical software (Excel), and how to apply them for decision recommendations. Specifically, this course will introduce a variety of quantitative models to improve business decision making in such areas as customer segmentation, customer targeting, brand positioning, as well as pricing and promotion decisions.

Prerequisites:

An introductory class in statistics/regression and working knowledge of MS Excel. Experience in any form of computer programming is always a plus but not required. However, the single most important prerequisite for the class is a positive attitude towards learning.

Students are expected to have basic computer skills including using the Internet, specifically, the Web. Students should be able to interact with the course site and resources in Canvas (posting to

Canvas discussion board, submitting assignments, etc.). We will be using Microsoft Excel (including Excel Solver and the Analysis. The minimal technical skills required include the ability to:

- ❖ organize and save electronic files
- ❖ find and use web resources
- ❖ use email and attach files
- ❖ check email and Canvas daily
- ❖ download and upload documents via email and Canvas
- ❖ prepare reports using a word processor
- ❖ create and modify spreadsheets in Microsoft Excel
- ❖ use basic spreadsheet functions and manipulate data.

Class Hours:

Mondays: 12:30pm – 3:15pm (Session 001)

Mondays: 5:30pm – 8:15pm (Session 002)

Course Objectives and Approach:

This is a hands-on and application-orientated course embracing the principle of *learning by doing*. Each analytic model that we cover has software (advanced Excel) implementation, and a problem/case whose resolution can be enhanced through the use of data. Statistical tools covered in the class will range from simple data analysis and visualization, to advanced methods such as non-linear regressions, choice model, and mining of ‘unstructured’ data. Our emphasis will be on applications and interpretation of the results for making business/policy decisions. To master each major tool introduced in this course, students should go through a four-stage problem solving process: analyzing the business problem, selecting and estimating relevant models, interpreting estimation results, and making decision recommendations. To master this four-stage problem solving process, students are expected to struggle at times. Notably, a major requirement is that students apply analytics techniques to their group project to solve typical business decision problems of their own choice. The semester-long project is intended to train students for the four-stage process of problem solving.

Regardless of your prior background, focus of this course should be on continuous improvement by benchmarking your own progress. In particular, you will get most of this class by focusing on (a) removing your fears (if any) of data analysis, (b) enhancing your toolkits, and (c) (most importantly) internalizing the broad analytical intuition.

The content of the course is covered through lectures and the students’ own efforts. Materials presented in class are a blend of the topics covered in the textbook and other sources.

Classroom Rules

- ❖ Please keep an eye on your UNCC email, as I will communicate with you through it as well as visit the course website periodically to download the hand-outs, assignments and other course materials.
- ❖ If you experience any technical issues in our online environment, reach directly to the IT Service Desk at: Phone: 704-687-5500 Email: help@uncc.edu Webpage:

<https://help.uncc.edu/>

- ❖ Electronic video, image capture, and/or audio recording is not permitted during class, whether conducted in person or online, unless the student obtains permission from the instructor. If permission is granted, any distribution of the recording is prohibited. Students with specific electronic recording accommodations authorized by the Office of Disability Services do not require instructor permission; however, the instructor must be notified of any such accommodation prior to recording. Any distribution of such recordings is prohibited.

Textbooks & References:

- **Textbook:**

You are not required to buy any textbook. All the class materials will be provided through our Canvas course website. For those who want to go deeper in learning, the following books are recommended as reference books.

Albright, S. C., & Winston, W. L. (2016). Business analytics: Data analysis & decision making. Cengage Learning.

Venkatesan, Rajkumar, Paul Farris, and Ronald T. Wilcox (2015), *Cutting-edge marketing analytics: real world cases and data sets for hands on learning*, Pearson Education.

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If you don't have any prior knowledge on statistics and econometrics, you are strongly encouraged to use the following textbook, and it is included in the Niner Course Pack.

Camm, Cochran, Fry, Ohlmann, and Ohlmann. Business Analytics, 5th edition. Cengage

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- **Software**

You will need access to the latest version of Microsoft Excel, with "Data Analysis ToolPak" properly installed. Note: It is your responsibility to have the software ready before Feb. 1st. The details about how to install this software are provided in Appendix to this syllabus.

- **Course material**

Presentation slides and other course materials will be available for download from your personal UNCC Canvas account, accessible at <http://canvas.uncc.edu/> for all registered students. Course material will be posted periodically on the course page (UNCC Canvas) as we progress through the course. All the grades on homework and exams will be available on your Canvas account. Student are required to check their UNCC email ID and Canvas for important notifications.

Grading Scale:

Evaluation

Homework Assignments	200
Individual/Group Project	250
Weekly Checkup Questions	150
Exam I	150

Exam II	250
Bonus points for posting and answering fellow students' questions on Canvas	Proportional to number and quality of postings
Total	1000+

Homework Assignments (20%): There will be multiple exercises throughout the semester. In each exercise, students are expected to solve specific business analytics problems relevant to corresponding lectures.

Group Project (25%): One group project will be assigned. The case is a small group assignment. You may work in groups of 3-4 people (It is acceptable to work individually.) All members of a group will receive the same grade.

How to find team members: There are several ways for you to consider finding team members.

- First, you may reach out to people you know in the class to form a team.
- Second, you may use the “Discussions” board on Canvas to communicate with your peers to find teammate(s) or join a team.
- Any other ways.

Since members of a group receive the same grade, I do not force the team formation. If you cannot find a teammate, you will have to do it individually (which is totally doable). One team only needs to submit ONE copy of work to Canvas for grading. It is each team member’s responsibility to ensure his/her name is on the file (For team members who do not contribute, other members have the right not to include their names in the report. They then have to work out and submit their own work to earn the grade). Grade will not be granted if your name is not on the file.

Class Attendance (15%): You are expected to go over all the course materials and actively participate in class discussions. Class participation (both quality and frequency) accounts for 15% of your final course grade and is used to reward students for positively contributing to the class learning environment. Details will be discussed in class.

- 2% for introduce your self
- 4% for rewarding (finish all the checkup questions and actively participate in class sessions)
- 9% for Weekly Checkup Questions

Individual Canvas Exams (40%): The exams will cover short exercises pertaining to each topic covered and will be similar in spirit to the case studies/exercises covered in the class. The exams are open book and open notes (not open internet).

- Exam I will be given during regular class meeting time. The final exam (Exam II) will be administered according to the UNCC Final Examination Schedule. Exams will be open book and open notes. You will complete each exam on Canvas. Only one attempt is allowed for each exam.
- Note that these exams are timed, and it is urged that you study the required materials carefully before the exam.

- Exams have to be your individual work and any form of collaboration is not allowed. Sharing, emailing, or copying answers will be considered academic misconduct. Any exams not taken on the scheduled day require a written note (e.g., doctor's note) certifying your inability to take the exam on the scheduled date and time.
- Exams will cover homework and lecture notes consistent with the tentative class schedule. The format of the exams will be multiple-choice and will include conceptual (e.g., non-mathematic) problems as well as problem-solving and numeric manipulation.
- Make-ups for exams may be requested for valid excuses only. All excuses must have verifiable documentation. Foreseeable excuses (e.g. athletes on traveling squads) must be documented and requests be received at least one week in advance of the exam. If you miss the final exam for a legitimate reason, you will be given an "Incomplete" and a makeup final will be arranged accordingly. A student missing a test with an unexcused absence will receive a score of zero.

Turning in Homework and Projects: All written projects and assignments should be submitted electronically via canvas on the due date. 20% of the assigned grade will be deducted for the late assignments/each day till reach 0 point.

Grading scale:

Your overall numerical grade will be rounded to the nearest integer and then converted to a letter grade according to the following table. Once the course grades are released, requests without clear evidence for a change would be denied.

Letter Grade	A	B	C	D	F
Range of Numerical Grade	89+	[80, 89]	[70, 79]	[60, 69]	< 60

When You Need Help

Please reach out to me if you have any questions about course material or difficulties with the concepts. This includes questions during class, office hours or appointments, by e-mail, before you hand in assignments, and after you receive your grade. I am on your team. Your preparation and willingness to interact with me really helps to keep us on track and in tune with each other during the lecture sessions.

Comments on Examinations, Homework, and Attendance:

- All homework and tests will be delivered and submitted through Canvas.
- **Homework:** It will be assigned on *Canvas*. Each student should work on the assignments *independently*. Further details on the assignments are forthcoming. You are expected to submit on or before the due date. No excuse for late submission will be considered. **No late homework will be accepted.** Details on homework will be given in due course.
- The standards and requirements set forth in this syllabus may be modified at any time by the course instructor. Notice of such changes will be announcement in class or by written or email notice.

Tentative Teaching Schedule:

- This is a loose and tentative schedule and the instructor reserves the right to change it according to course development and student progress.

Week	Date	Location	Topic
1	January 15, 2024	MLK Day	MLK Day-no class
2	January 22, 2024	City 801	Course overview and introduction to Consumer Analytics
3	January 29, 2024	Online	Summary Statistics
4	February 5, 2024	City 801	Group Project assignment
5	February 12, 2024	Online	Data visualization
6	February 19, 2024	City 801	Exploring Analytics: STP and Clustering Analysis
7	February 26, 2024	Online	Exploring Analytics: Association Rules and Text Mining
8	March 4, 2024	Spring Recess	Spring Recess - No Classes
9	March 11, 2024	City 801	EXAM I
10	March 18, 2024	Online	Group Project meetup (online group meeting)
11	March 25, 2024	City 801	Market Response Model: Regression + Inference
12	April 1, 2024	Online	Market Response Model: Nonlinearities + transformations
13	April 8, 2024	City 801	Time Series I: Forecast accuracy + Moving averages and exponential smoothing
14	April 15, 2024	Online	Time Series II: Regression analysis + Serial correlation
15	April 22, 2024	City 801	Group Presentation
16	April 29, 2024	Online	Predictive Data Mining-Nearest Neighbors
17	TBD	City 801	EXAM II

Course Policies:

Syllabus Revision:

The standards and requirements set forth in this syllabus may be modified at any time by the course instructor. Notice of such changes will be by announcement in class or by written or email notice or by changes to this syllabus posted on the course website at <https://canvas.uncc.edu>.

Classroom Conduct:

I will conduct this class in an atmosphere of mutual respect. I encourage your active participation in class discussions. Each of us may have strongly differing opinions on the various topics of class discussions. The conflict of ideas is encouraged and welcome. The orderly questioning of the ideas of others, including mine, is similarly welcome. However, I will exercise my

responsibility to manage the discussions so that ideas and argument can proceed in an orderly fashion. You should expect that if your conduct during class discussions seriously disrupts the atmosphere of mutual respect I expect in this class, you will not be permitted to participate further.

Revisions:

Revisions of all major writing assignments must be completed and submitted no later than 2 weeks after feedback has been returned.

Feedback:

Typically, feedback will be returned within one week for small assignments and two weeks for larger papers.

Academic Integrity:

All students are required to read and abide by the Code of Student Academic Integrity. Violations of the Code of Student Academic Integrity, including plagiarism, will result in disciplinary action as provided in the Code. Students are expected to submit their own work, either as individuals or contributors to a group assignment. Definitions and examples of plagiarism and other violations are set forth in the Code. The Code is available from the Dean of Students Office or online at: <http://legal.uncc.edu/policies/up-407>. Faculty may ask students to produce identification at examinations and may require students to demonstrate that graded assignments completed outside of class are their own work.

Course Credit Workload:

This 3-credit course requires 3 hours of classroom or direct faculty instruction a week and 6 hours of out-of-class student work each week for approximately 15 weeks. Out-of-class work may include but is not limited to: required reading, library research, written assignments, and discussion posts.

Non-Discrimination:

All students and the instructor are expected to engage with each other respectfully. Unwelcome conduct directed toward another person based upon that person's actual or perceived race, actual or perceived gender, color, religion, age, national origin, ethnicity, disability, or veteran status, or for any other reason, may constitute a violation of University Policy 406, The Code of Student Responsibility. Any student suspected of engaging in such conduct will be referred to the Office of Student Conduct.

Diversity

The Belk College of Business strives to create an inclusive academic climate in which the dignity of all individuals is respected and maintained. Therefore, we celebrate diversity

that includes, but is not limited to ability/disability, age, culture, ethnicity, gender, language, race, religion, sexual orientation, and socio-economic status.

Disability accommodations

UNC Charlotte is committed to access to education. If you have a disability and need academic accommodations, please provide a letter of accommodation from Disability Services early in the semester. For more information on accommodations, contact the Office of Disability Services at 704-687-0040 or visit their office in Fretwell 230.

Title IX:

Title IX UNC Charlotte is committed to providing an environment free of all forms of discrimination and sexual harassment, including sexual assault, domestic violence, dating violence, and stalking. If you (or someone you know) has experienced or experiences any of these incidents, know that you are not alone. UNC Charlotte has staff members trained to support you in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, helping with legal protective orders, and more. Please be aware that many UNC Charlotte employees, including all faculty members, are considered Responsible Employees who are required to relay any information or reports of sexual misconduct they receive to the Title IX Coordinator. This means that if you tell me about a situation involving sexual harassment, sexual assault, dating violence, domestic violence, or stalking, I must report the information to the Title IX Coordinator. Although I have to report the situation, you will still have options about how your case will be handled, including whether or not you wish to pursue a formal complaint. Our goal is to make sure you are aware of the range of options available to you and have access to the resources you need. If you wish to speak to someone confidentially, you can contact any of the following on-campus resources, who are not required to report the incident to the Title IX Coordinator: (1) University Counseling Center (counselingcenter.uncc.edu, 7-0311); (2) Student Health Center (studenthealth.uncc.edu, 7-7400); or (3) Center for Wellness Promotion (wellness.uncc.edu, 7-7407). Additional information about your options is also available at titleix.uncc.edu under the “Students” tab.

Religious Accommodation:

Students who, acting in accordance with this Policy, miss classes, examinations or other assignments because of a religious practice or belief must be provided with a reasonable alternative opportunity to complete such academic responsibilities. It is the obligation of students to provide faculty with reasonable notice of the dates of religious observances on which they will be absent by submitting a [Request for Religious Accommodation Form](#) to their instructor prior to the census date for enrollment for a given semester. The census date for each semester (typically the tenth day of instruction) can be found in [UNC Charlotte’s academic calendar](#).

Student Grievances:

Student Grievances Students enrolled in courses at the University of North Carolina at Charlotte who would like to file a complaint regarding their experience may do the following: 1. Refer to the UNC Charlotte Student Grievance Procedure. Students may also contact UNC Charlotte's regional accrediting agency, the Southern Association of Colleges and Schools Commission on Colleges. 2. Students residing outside of North Carolina while attending UNC Charlotte may file a complaint in their state of residence. As required by federal regulations, students are directed to the list of resources here, compiled and updated by the State Higher Education Executive Officers.

Withdrawals:

Students are expected to complete all courses for which they are registered at the close of the add/drop period. If you are concerned about your ability to succeed in this course, it is important to make an appointment to speak with me as soon as possible. The University policy on withdrawal allows students only a limited number of opportunities available to withdraw from courses. It is important for you to understand the financial and academic consequences that may result from course withdrawal.

Incompletes:

The grade of I is assigned at the discretion of the instructor when a student who is otherwise passing has not, due to circumstances beyond his/her control, completed all the work in the course. The missing work must be completed by the deadline specified by the instructor, and no later than 12 months. If the I is not removed during the specified time, a grade of F, U, or N, as appropriate is automatically assigned. The grade of I cannot be removed by enrolling again in the same course, and students should not re-enroll in a course in which they have been assigned the grade of I. University policy addressing Incompletes.

Student Support:

Disability Support Services:

Students in this course seeking accommodations to disabilities must first consult with the Office of Disability Services and follow the instructions of that office for obtaining accommodations. The Office of Disability Services works with current undergraduate and graduate students along with prospective students to ensure equal access to UNC Charlotte's campus and educational programs.

All services are dependent upon verification of eligibility. Once approved for services, students receive accommodations which are based upon the nature of an individual's disability and documented needs. Students are strongly encouraged to register or check-in for their accommodations with a Disability Services counselor as soon as they have registered for classes. Accommodations are not retro-active and will not begin until the student notifies his or her faculty by providing the Letter of Accommodation.

Please visit the Office of Disability Services at for additional resources, email questions to disability@uncc.edu, or call 704-687-0040 (tty/v) for more information.

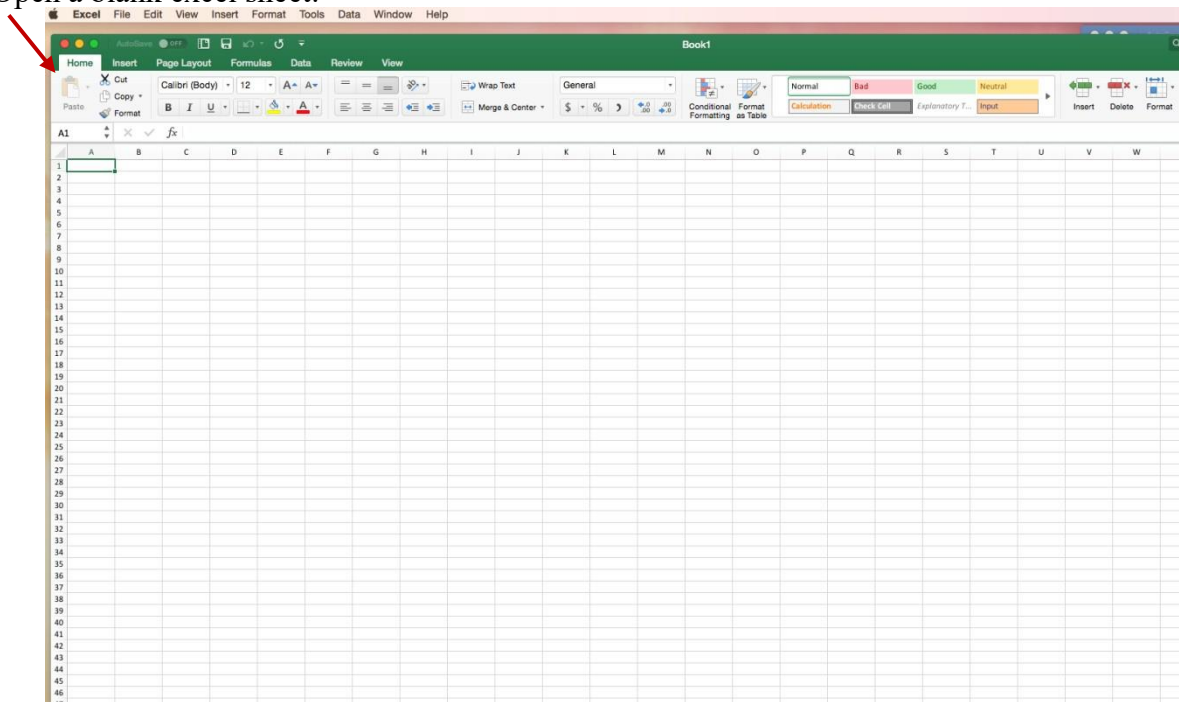
Student Support Services:

Be sure to take advantage of the wealth of resources and support available at UNC Charlotte. Some of the resources available to you include the University Writing Resource Center, University Counseling Center, and the J. Murrey Atkins Library.

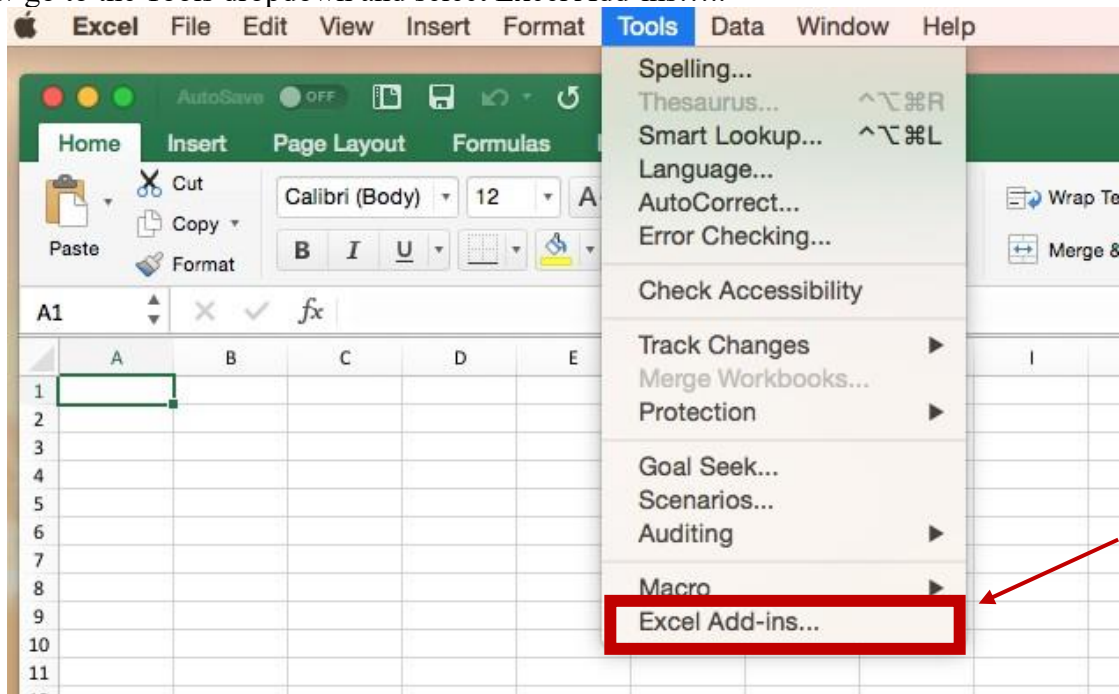
- [University Center for Academic Excellent \(UCAE\) | \(704\) 687 7837 | uncc-ucac@uncc.edu](mailto:uncc-ucac@uncc.edu)
- [University Writing Resources Center \(WRC\) | 704-687-1899 | wrchelp@uncc.edu](mailto:wrchelp@uncc.edu)
- [Veteran Student Services | 704-687-5488 | veteranservice@uncc.edu](mailto:veteranservice@uncc.edu)
- [University Counseling Center | 704-687-0311](tel:704-687-0311)
- [Multicultural Resource Center | 704-687-7121 | mrc@uncc.edu](mailto:mrc@uncc.edu)
- [List of computer labs on campus](#)
- [Atkins Library Laptop Lending program](#)

APPENDIX Installing the Analysis ToolPak in Excel for Mac Users

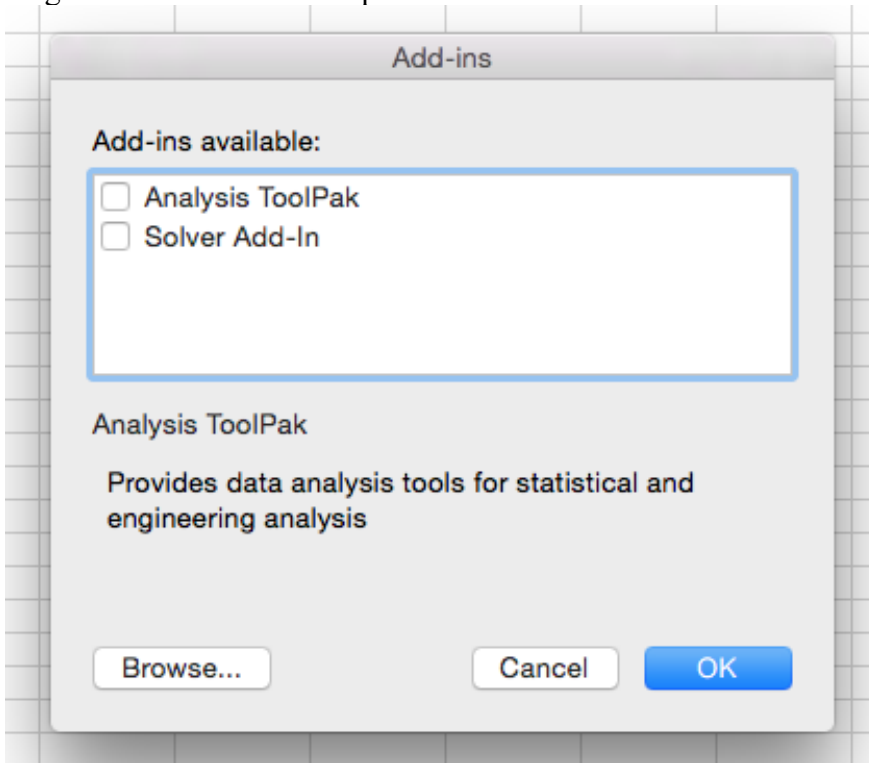
Analysis tool pack is the “add in” in excel, which is required to perform statistical analysis. You can install this add in by performing the following steps.
Open a blank excel sheet.



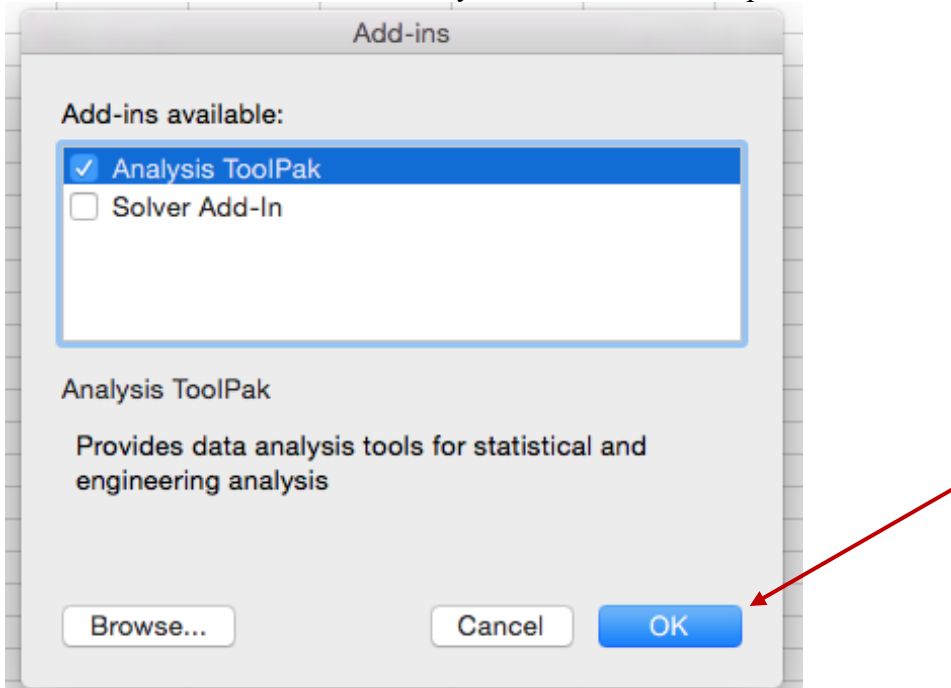
Now go to the Tools dropdown and select Excel Add-ins.....



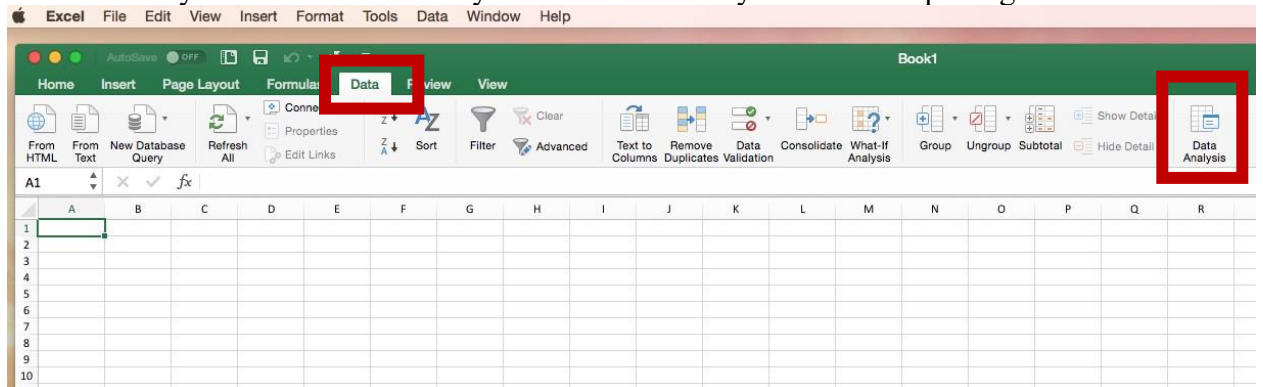
Pressing “Excel Add-ins” will open Add-ins window



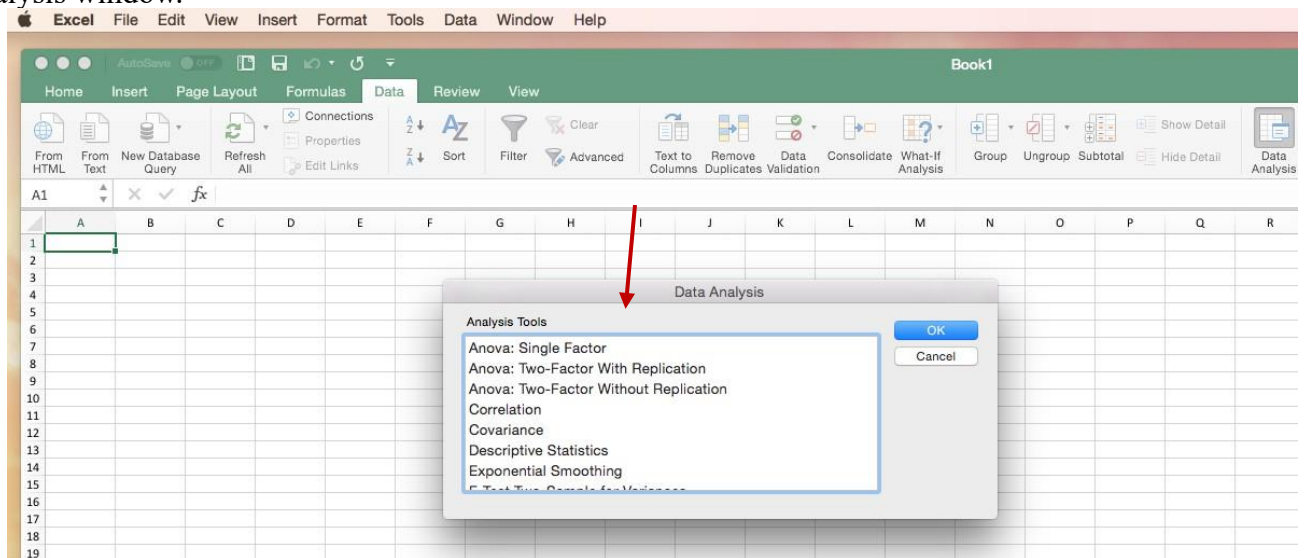
In the Add-ins window check the ‘Analysis ToolPak’ box and press OK



To confirm that you have successfully installed the “Analysis ToolPack”, go to the Data Tab and look for Data Analysis option on the upper right corner of the excel sheet. If you see the Data Analysis button that means you have successfully installed the package.



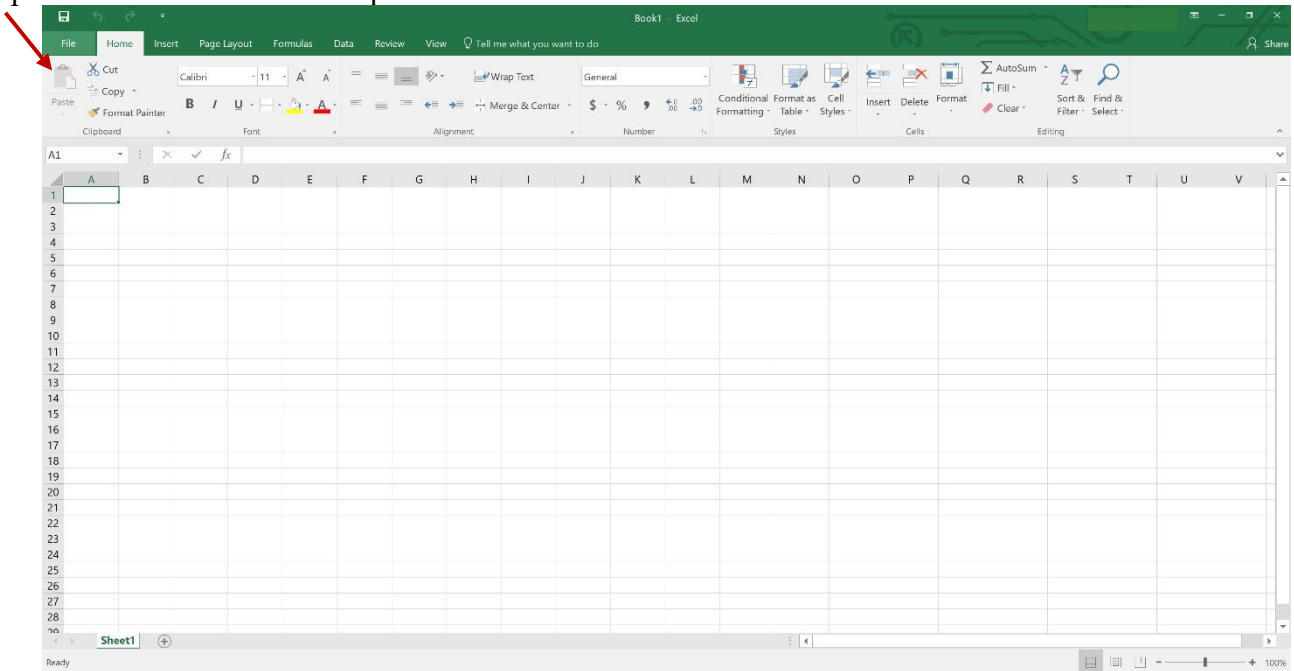
Now press Data Analysis button and explore various statistical analysis options in the Data Analysis window.



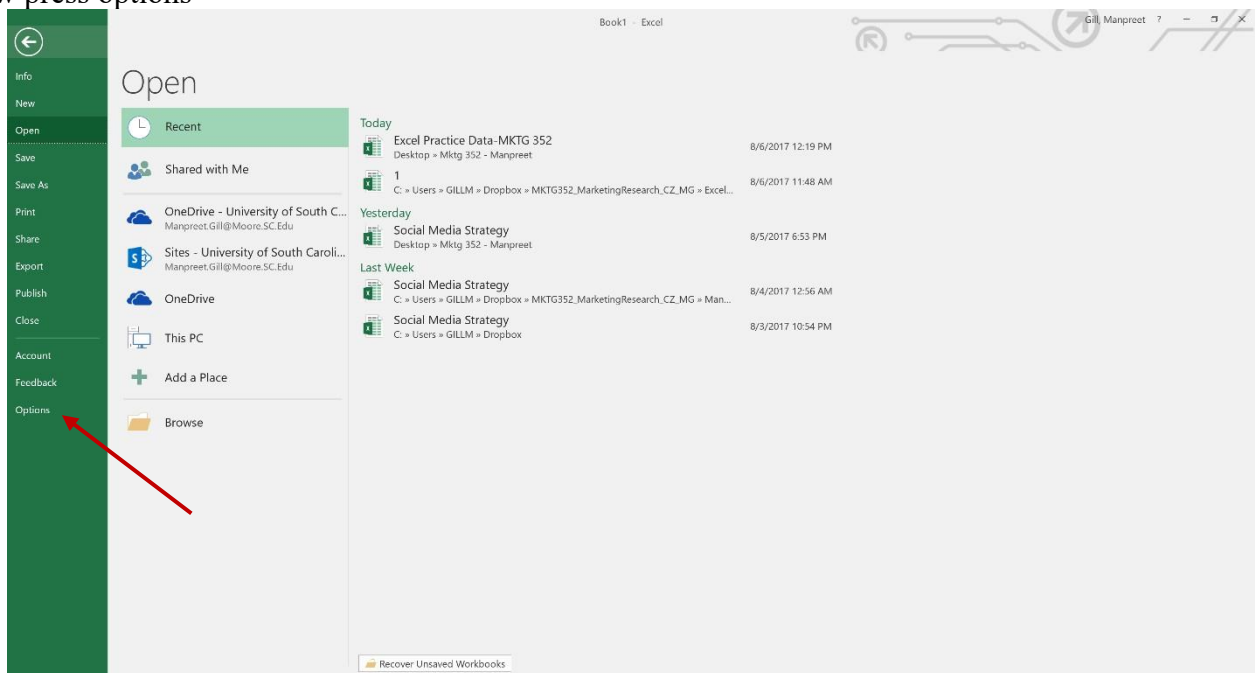
Installing the Analysis ToolPak in Excel for Windows Users

Analysis tool pack is the “add in” in excel, which is required to perform statistical analysis. You can install this add in by performing the following steps.

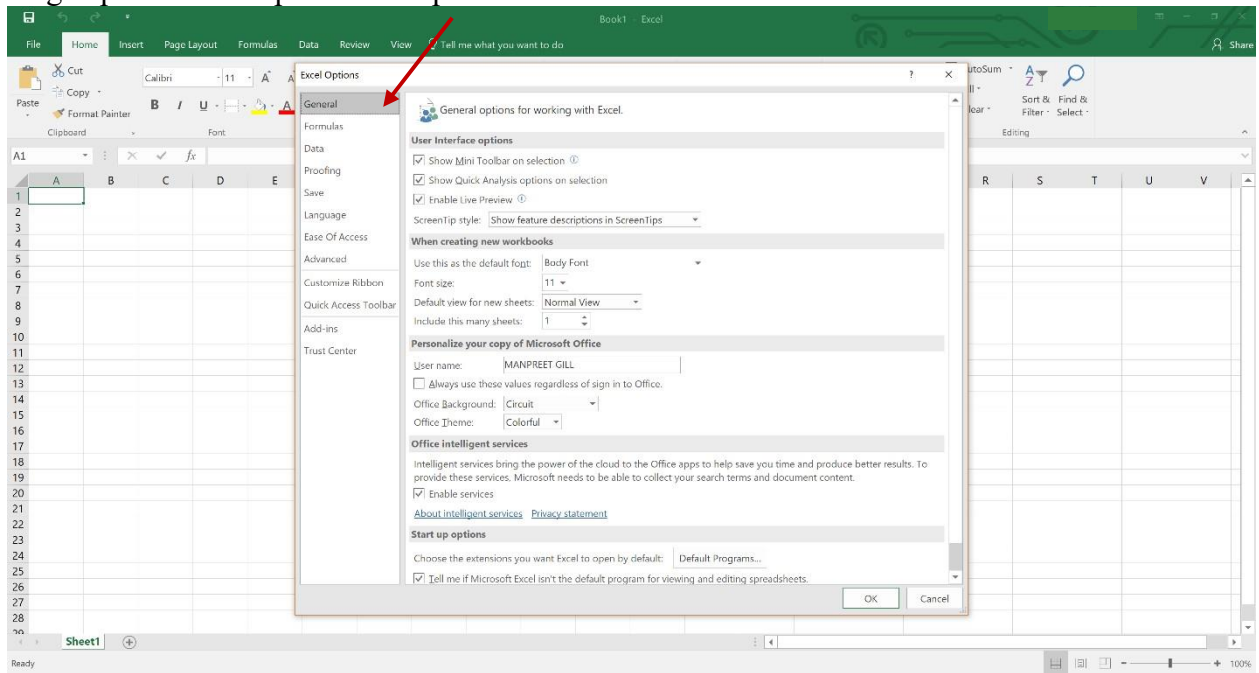
Open a blank excel sheet and press file.



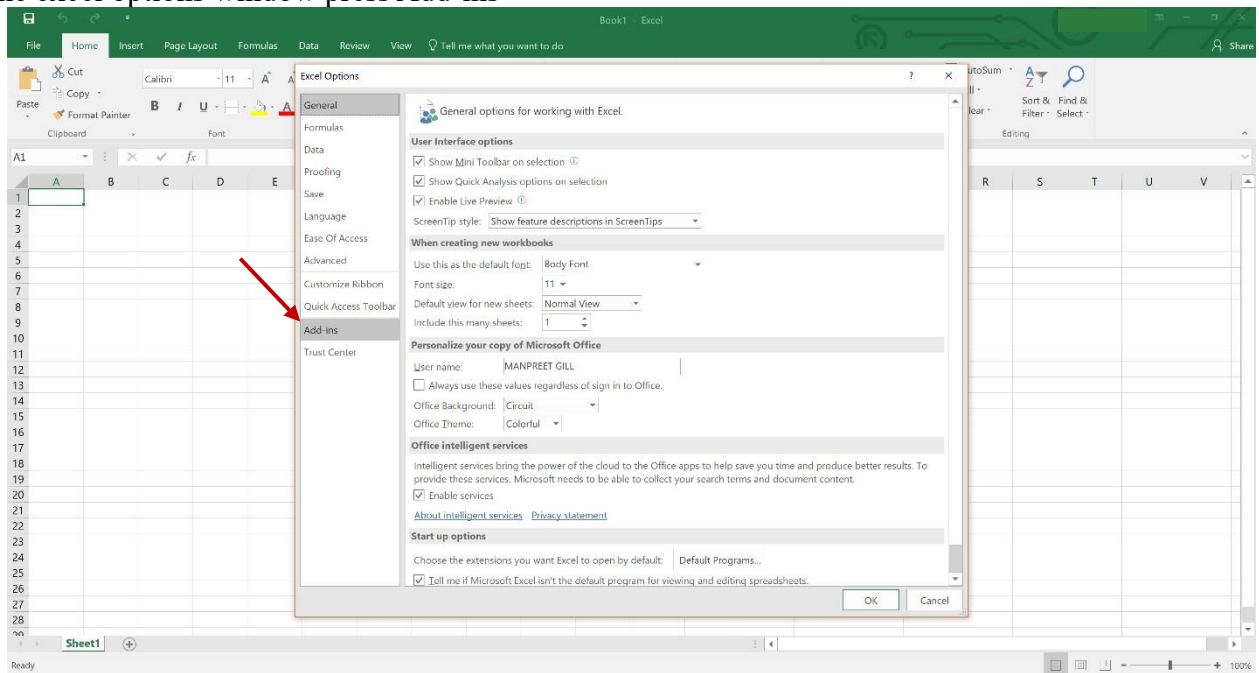
Now press options



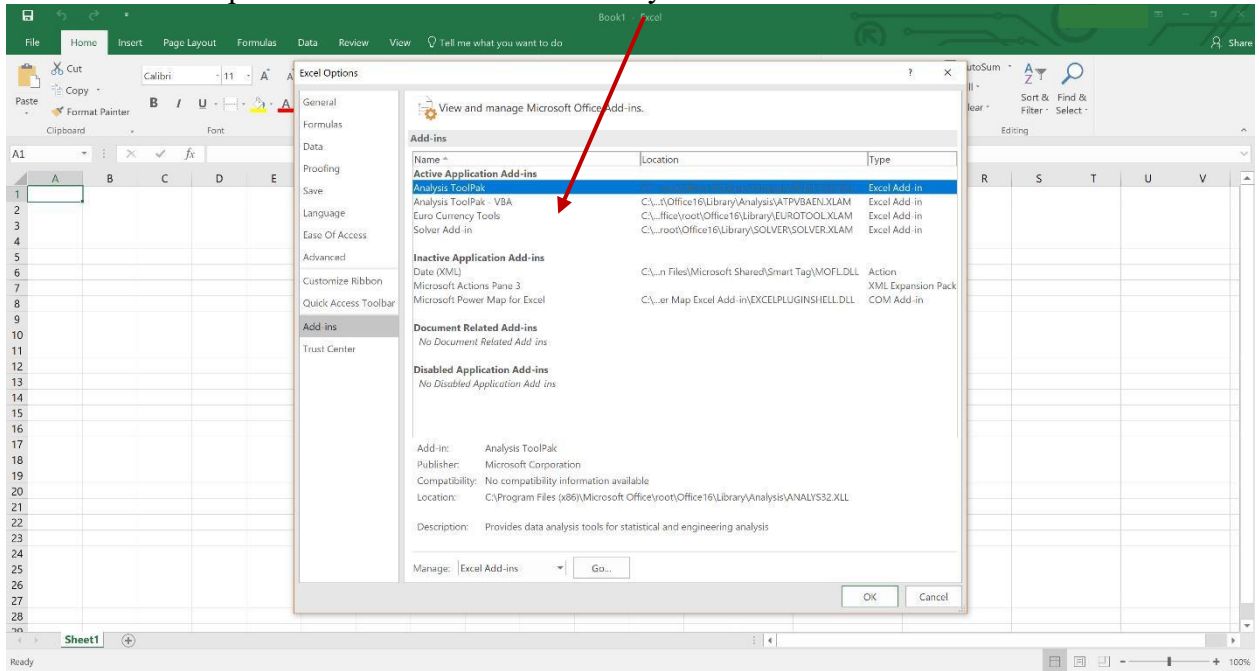
Pressing “options” will open Excel Options window



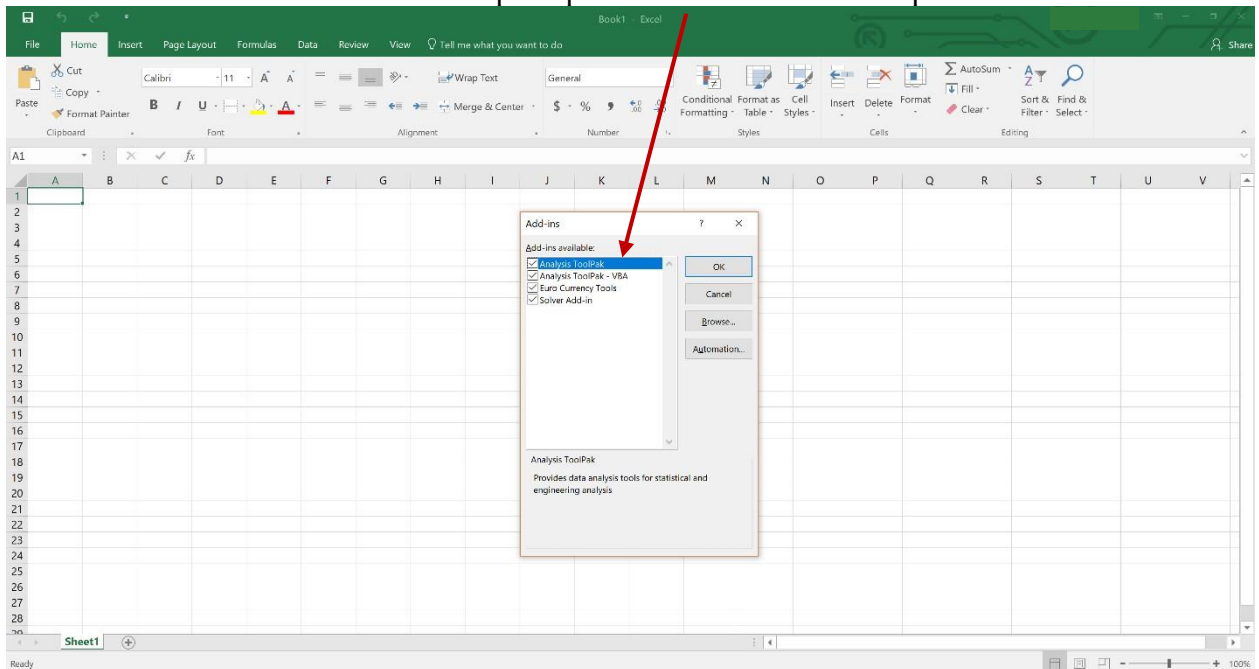
In the excel options window press Add-ins



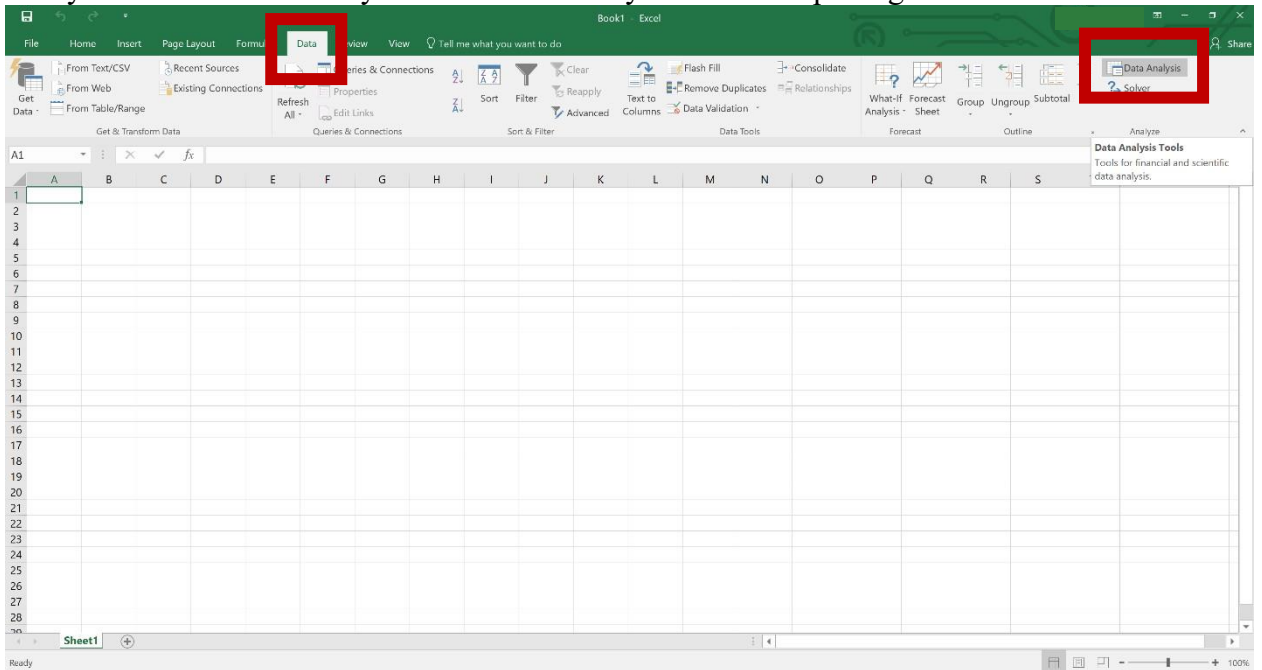
A new window will open. In this window select “Analysis ToolPak” as shown below.



A new window named as “Add-ins” will open up. Check all the boxes and press OK.



To confirm that you have successfully installed the “Analysis ToolPak”, go to the Data Tab and look for Data Analysis option on the upper right corner of the excel sheet. If you see the Data Analysis button that means you have successfully installed the package.



Now press Data Analysis button and explore various statistical analysis options in the Data Analysis window.

