

# Skills for a Career in Applied Statistics

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## INTRODUCTION

With the advancement in computing technology in the past decade, the amount of information gathered and available has increased astronomically. With the availability of data, the quest for using this to help answer many questions in all fields of research is also more prominent. In order to provide credible results for the analysis of data, applied statistics is a tool many of us rely on. Practicing statistics optimally requires many skills.

## TECHNICAL SKILLS

From a technical perspective, developing skills in the following areas is critical:

- Knowledge of statistical methodologies and associated assumptions – Different methodologies have been developed to best handle different types of data. Most importantly, all statistical methods have a set of assumptions that need to be considered when applying the method to the data. Inappropriate choice of method and violation of assumptions will lead to erroneous conclusions.
- Familiarity with different software and computing systems – Many software platforms and computing environments are available for data analyses. Having the experience and a thorough understanding of various options available will make transitioning from one environment to the next easier, and faster. Knowledge of the specifics of different software platforms will widen the field of application and enable efficient use of tools.
- Programming skills – Many computer languages, built from the ground up, are available to use to develop various computing software. Understanding the fundamentals of programming languages and logic will provide greater flexibility and capacity to carry out specific data analyses required, and with better precision and efficiency, as well as the ability to customize analyses.

- Understanding of relevant problems in the field of research– Identifying problems clearly, and constructing hypotheses precisely, is the first step to finding accurate answers to resolve problems. An in-depth understanding in the field of research is essential to appropriately define problems, and then select optimal methods to apply to the data. This will enable the proper evaluation of results, and ultimately reach an appropriate solution.
- Ability to sort through data – Good relevant data is achieved through careful examination prior to any analyses. Outcomes can be misleading if data has too much noise. With the large amount of data available (often collected under different conditions) , it is critical to assess the reliability of the data source, identify any irregularities, select relevant data, and not overlook any key signals.

## NON-TECHNICAL SKILLS

In order to be effective at any job, a standard set of non-technical skills are essential:

- Communication – Effective communication is critical to ensure a clear flow of information to all stakeholders in the organization. Communication takes on many different forms with today's technology. The ability to effectively communicate, using the most appropriate style and tools, is a valuable skill.
- Problem solving – The ability to use a logical approach to analyze problems and resolve issues is essential, regardless if the problem is technical, process or human nature.
- Organization and multitasking – With the amount of information, resources and opportunities available today, making the most efficient use of time, resources and materials, requires a high level of organization and multitasking.
- Attention to detail – Paying attention to details ensures successful outcomes. It is the only way to deliver products/ outcomes that not only meet but also exceed expectations.

- Desire for excellence – A desire for excellence in any role ensures all initiatives are conducted for the best outcome. This internal drive brings purpose and satisfaction to the individual, as well as driving a team to a collective goal in a collaborative and respectful way.

## LEADERSHIP SKILLS

Leadership skills are not just for CEOs. People at all levels need to step up to do more when it is called for. Successful leaders have some common traits.

- Vision for a meaningful goal – Having the vision for realistic and meaningful goals brings teams together, directs effort to the right course and leads to success and job satisfaction.
- Motivation and discipline – Ability to enhance strength and manage weakness will bring teams to a higher level of performance.
- Team building – Team work is the key to getting things done successfully. Good team work often makes up for individual deficiencies to collectively overcome challenges. The ability to get people to work together and rally for success is invaluable.
- Coaching and mentoring – Good coaching and mentoring are essential to develop talent and ensure a team performs at a consistently high level.
- Adaptability and flexibility – Today's society is on a fast pace to adopt new technology, cultures, rules and standards. Being able to adapt to new ideas and be flexible to change are crucial to stay on top of the trend for maximum rewards.

## CONCLUSION

To succeed in any role, it is essential to be equipped with a good balance of finely honed technical and non-technical skills. Ultimate success and fulfilment requires passion, commitment, a desire for excellence, and demonstrating genuine concern and respect for the people you work with.