# Discussion

Purpose of the Discussion

- Address the research question, as stated in the Introduction
- Explain the meaning of the results to the reader, by describing and providing interpretation of the major findings of your study
- Provide context, by relating findings to previous studies
- Consider alternative explanations for your findings
- Acknowledge limitations of study and suggest further research required
- Explain the significance of the study and how it has added knowledge
- Explain broader implications of your study

Major Elements of the Discussion

- Major findings: patterns in data (and any exceptions)
- Mechanisms underlying the patterns in data. There may be multiple possible mechanisms/hypotheses, which should all be addressed. Clarify line of reasoning, with references to provide validation
- Comparison to previous related studies
- Highlight what information has been added by the study. Explain the significance of your study and why the reader should care. State implications of results for other unanswered questions

Explaining the Significance of Statistically Significant and Insignificant Results
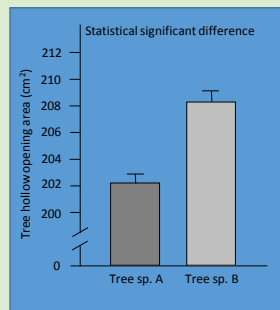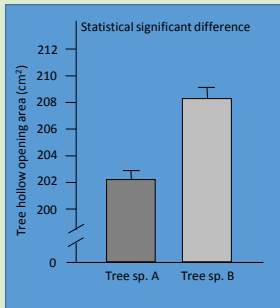

Aim: determine reasons for a tree-dwelling mammal to preferentially inhabit particular tree species
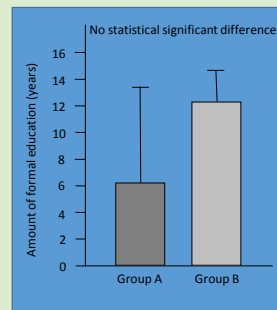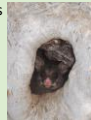
Aim: determine the effect of socioeconomic factors on use of public transport

Explaining the Significance of Statistically Significant Results in Discussion

Uninformative: ''Tree sp. B had larger tree hollow openings than sp. A, which may be beneficial for *N. columbii*.'

Informative: 'The size of tree hollows was larger in sp. B than sp. A, although this size difference is likely not biologically significant for *N. columbii*. Little is known about the habitat preferences of *N. columbii*, but the closely related *N. barnardi* has been found to preferentially occupy tree hollows with openings between 150 and 270 cm^2 (Costanza, 2004). Hollows over 150 cm^2 are large enough to allow access by pregnant *N. barnardi* females (Costanza, 2004), which are similar in size to pregnant *N. columbii* (Jones, 1993). However, mammalian tree-dwelling predators that are common in the Riverside Peninsula can readily access hollows with openings larger than 300 cm^2 (Bookman & Costanza, 2007; Peppa, 2009). It has also been suggested that hollows with openings larger than 250 cm^2 may not provide protection during the harsh storms that occur whilst most tree-dwellers would be nesting in the region (Peppa & Bookman, 2005). During the present study, tree hollow openings of both sp. A and sp. B in the Riverside Peninsula were found to be between 200 and 210 cm^2, which is within the range of sizes that would both allow access by pregnant female *N. columbii* and exclude large predators. Further study would be required to determine whether others factors, such as...'

Explaining the Significance of Statistically Insignificant Results in Discussion
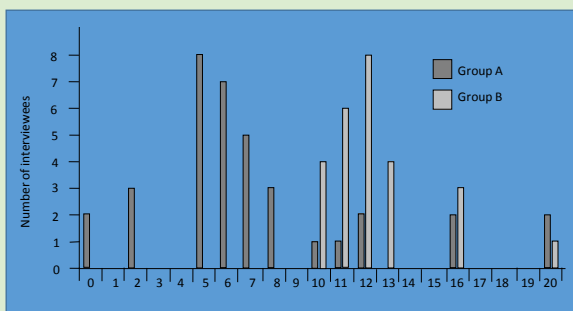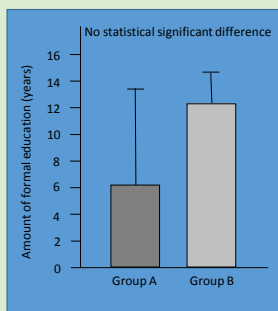
Possible discussion points:
- Why the majority of Gp. A only 5-8 yrs, but all Gp. B over 9 yrs of education?
- Why larger range for Gp. A than Gp. B (still some very educated Gp. A interviewees)?
- Given the majority of Gp. B is more educated than majority of Gp. A, what effect does this have on use of public transport?
  - etc...

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Avoid

- Introducing results that did not appear in the results section
- Reiteration of results, without interpretation to aid reader
- Being overly verbose or repetitive
- Undefined jargon or specialized terms, as your thesis must be understandable to a broad educated readership (after reading your discussion section you want the reader to think 'That makes perfect sense, why hadn't I previously thought of that?')
- Overinterpretation, speculation or inflating results beyond what is supported by your data
- Tangential issues that are unrelated to your research question
- Trendy bandwagons, unless there is a clear link to your study
- Apologetic tone when discussing potential limitations of your study

Plan Your Discussion

- Discussion is the section where you are most able to demonstrate ability to critically evaluate an issue
- Ensure that you **allow adequate time** to complete the Discussion section
- Organize your thoughts in a logical order before you begin writing the text of the discussion (list the major discussion points that you will address, going from specific to broader scope). The order of interpretation should be in the same order as described in results section. To help flow, the final version of discussion can be broken into logical segments by using subheadings

Thesis Also Has Conclusions and Recommendations

- **Conclusions** summarize new observations, new interpretations, and new insights that have resulted from the present work (i.e. what is the strongest succinct 'take home message' from your work)

- **Recommendations** suggests future investigations required in the field, potential solutions to posed gaps, and potential use of findings in a broader context

    Throughout the thesis, there should be no repetition of sentences

Class Exercise: Using References in Discussion

- Major findings: patterns in data (and any exceptions) - PATT
- Mechanisms underlying the patterns in data. There may be multiple possible mechanisms/hypotheses, which should all be addressed. Clarify line of reasoning, with references to provide validation - MECH
- Comparison to previous related studies - COMP
- Highlight what information has been added by the study. Explain the significance of your study and why the reader should care. State implications of results for other unanswered questions - IMPL

More Information on Senior Seminar Website

http://www.ldeo.columbia.edu/~martins/sen_sem/results_discussion.html

http://www.ldeo.columbia.edu/~martins/sen_sem/thesis_org.html