RESULTS

The ratios of dominant to recessive forms were remarkably consistent in each of the first generation offspring of the monohybrid and dyhybrid crosses. The 3:1 ratio (dom:rec) in monohybrid crosses was expressed as a 9:3:3:1 ratio in the dyhybrid crosses. There was no evidence of blending and no evidence of an effect of gender on the outcome of any of the crosses.

Monhybrid crosses

Each of the initial seven monohybrid crosses resulted in plants that exclusively expressed the dominant form of each trait. The recessive form appeared only in later generations. This constituted the definition of dominant and recessive forms.

When the monohybrids were allowed to self-fertilize, dominant and recessive forms were expressed in a ratio of approximately 3:1 for each of seven traits (Table 1) … more detail…. 

Self fertilization among the first generation offspring of the initial monohybrid crosses revealed a pattern among the offspring that reflect heterogeneity among the parent plants…. (this is about the 2:1 ratio of constant dominant to hybrid dominant…

Dyhibrid crosses
GOALS FOR SCIENTIFIC WRITING

Structure

• **Apparent**: Headings, subheadings, and topic sentences are easily identified and reflect your writing strategy.

• **Instructive**: The paper’s headings, subheadings, and topic sentences organizes the reader’s thinking (can serve as a summary of the content when converted to an outline).

• **Appropriate**: Structural complexity matches the complexity of the content.

Language

• **Concise**: Sentences are succinct, containing no extra words.

• **Precise**: Word choice reflects a thoughtful process.

• **Engaging**: Sentences are written in active voice with strong verbs and apt adjectives.
GOALS FOR SCIENTIFIC WRITING

• **Illustrations**
  – **Appropriate**: The choice of tables versus figures suits the data and would not be better expressed as text.
  – **Well designed**: Illustrations are readable and attractive.

• **Form**
  – Correct grammar, spelling, and punctuation.
  – Correct formatting.
To tighten your writing, eliminate redundancies and writing zeroes

Vibration measurements made in the course of the Titan flight test program were complicated by the presence of intense high-frequency excitation of the vehicle shell structure during the re-entry phase of the flight.

Vibration measurements made in the Titan flight were complicated by intense high-frequency excitation of the vehicle shell during re-entry.
Discussion and Conclusion

The squid technique:
The author is doubtful about his or her facts or reasoning and retreating behind a cloud of ink.
What’s the Purpose of a Discussion Section?
What’s the Purpose of a Discussion Section?

- **Summarize findings** presented in the results section.
- **Cite supporting literature.**
- **Explain discrepancies** between your findings and previous reports.
- **Point out** shortcomings of your work.
What’s the Purpose of a Discussion Section? (continued)

Define unsettled points.

Discuss *theoretical and practical implications* of your work.

End with a short *summary or conclusion* about the work’s importance.
Remember This?

The Introduction and Discussion are like \textit{bookends} around your Methods and Results.

They \textit{integrate} your original findings with the literature and current knowledge.

\textbf{Context, Justification, and Focus} addressed in the Introduction are echoed in the Discussion section:

- \textbf{Focus} = \textit{Summary of findings}
- \textbf{Context} = \textit{How do findings fit in?}
- \textbf{Justification} = \textit{Implications of your work} (and next steps).
Phonologic-Deficit Hypothesis

• People with dyslexia are unaware that:
  – Words can be broken down into smaller units of sound (phonemes).
  – That letters constituting the printed word represent the sounds heard in the spoken word.

• Higher levels of language system: semantics, syntax, discourse.

• Lower levels of language system: phonologic module for processing distinctive sound elements that constitute language.
What Makes a Discussion Section Tough to Write?
What Makes a Discussion Section Tough to Write?

The discussion section is harder to define than other sections of a research paper.

It requires perspective, knowledge, and thought.

You may have begun writing before the conclusions were formulated.

Your data may be weak or inconclusive.
What are the Pitfalls of a Discussion Section?

Long, wordy arguments that lack of focus and meander.

Failure to follow through with arguments begun in the introduction.

Failure to focus on current results.

Speculating too much or not enough.

Improper tense - Discussions are written in the present tense.

Hedging excessively.
Excessive Hedging


“The cause of the degenerative changes is unknown but possibly one cause may be infection by a presumed parasite.”

Rule of thumb: One hedge word per sentence!
# Common Hedging Words


<table>
<thead>
<tr>
<th>nouns</th>
<th>adverbs</th>
<th>verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>supposition</td>
<td>presumably</td>
<td>appear</td>
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<tr>
<td>idea</td>
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<td>postulate</td>
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<tr>
<td>speculation</td>
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<td>suggest</td>
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<tr>
<td>conjecture</td>
<td>apparently</td>
<td>seem</td>
</tr>
<tr>
<td>possibility</td>
<td>not unlikely</td>
<td>may be</td>
</tr>
<tr>
<td>inference</td>
<td>seemingly</td>
<td>speculate</td>
</tr>
</tbody>
</table>
In-class Exercise:

Review the illustrations and results of the student who’s name appears two below yours on the roster.
Out-of Class Exercises

Write a critique of the Discussion section of the NEJM paper by Druker et al.
(You wrote plain language introductions for this paper at the beginning of the term.)

Read the Birth of Molecular Biology - posted on the 7.02 web site.

Continue with long-term project:
  Write discussion and conclusions
  Make revisions to prior sections as needed.