

A: Myth of Content Mastery of the Top Ten Percent — Dr. Joseph Ross

BACKGROUND

Unproductive dogmas in education

- A, B, C, D, F
- Bell curve of grades
- arbitrary
- inter-rater disagreement
- what message is sent to the students?



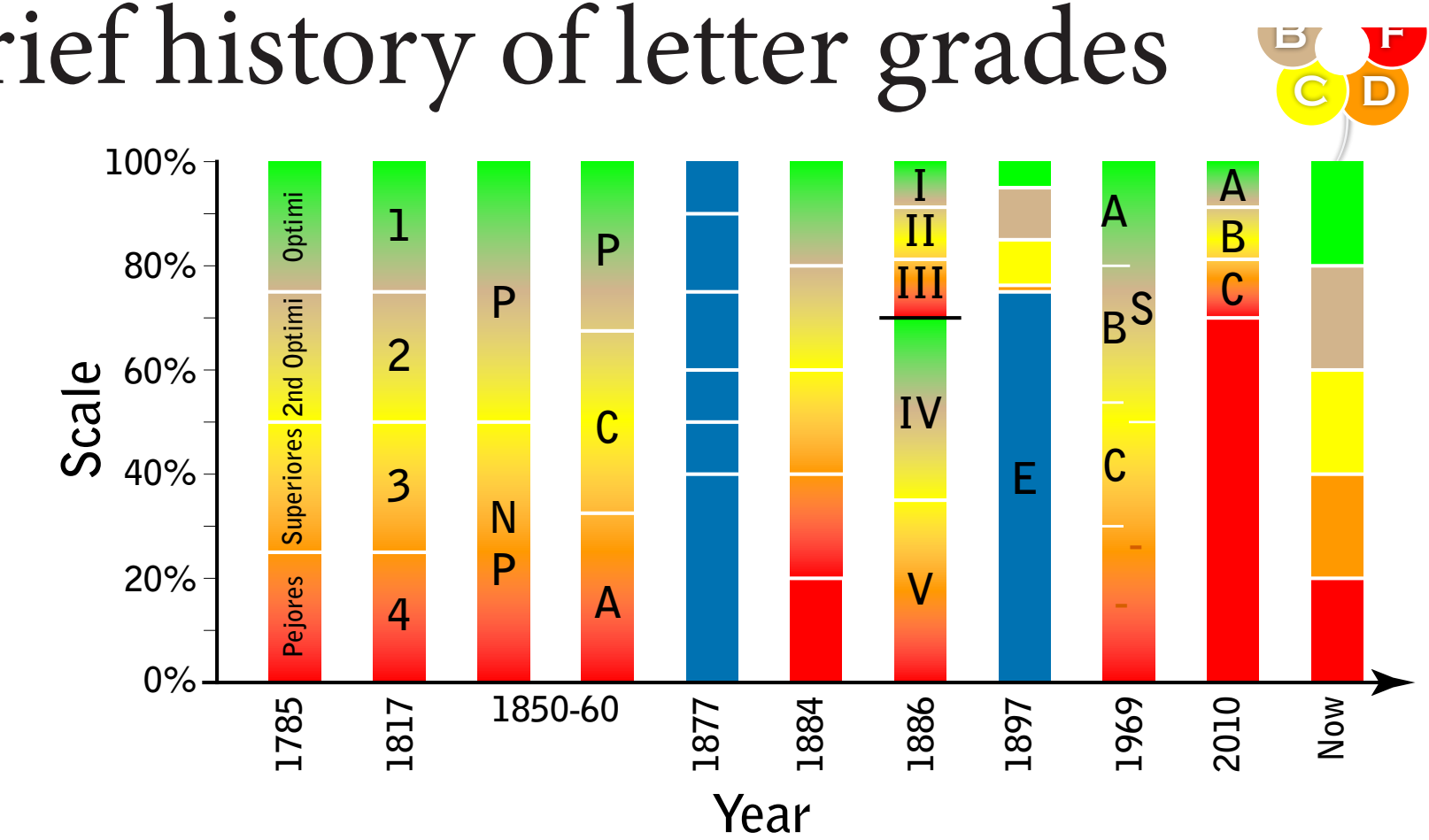
Handout: Pre-redesign Syllabus

Do you use a letter grade rubric?

Goals

- Base grades on clear & documented standard
- Facilitate all students earning an A
- Set student expectations

A brief history of letter grades



Handout: History of Letter Grading

APPROACHES

Backward Course Design:

Outcomes → Assessments → Instruction

Student Knowledge Survey (SKS)

Students self-rate their confidence in their ability to answer task-based questions

Example SKS process

1. **Course Goal:** analyze data and perform quantitative reasoning
2. **Student Outcome:** apply simple statistical tests to the analysis of data
3. **Skill:** evaluate pedigree data using a chi-square test

Handout: Example SKS

Letter grade rubric & assessment items aligned with Bloom's

Bloom's Taxonomy	% of Points	Ross' Point & Grade Alignment	Letter grade	Example activities
6 Create	>=80%	Accomplished	A	criticize, defend, interpret, justify, recommend, construct, invent, modify, design
5 Evaluate	>=60%	Burgeoning	B	compare, contrast, rank, generalize, relate
4 Analyze	>=40%	Competent	C	choose, use, solve, predict, calculate
3 Apply	>=20%	Developing	D	explain, summarize, describe, diagram
2 Understand	<20%	Foundational	F	define, label, identify, locate, select
1 Remember				

Example Alignment Process

1. **Outcome:** apply, analyze and evaluate the causes of, and evidence for, genetic variation
2. **Task:** predict impact of temperature on DNA structure
3. **Assessment:**
Which of the following DNA strands will form the fewest hydrogen bonds with its complementary strand?
a) AGCTCGACTACGACT
b) GCATCAGCTACTATC
c) GATCTTCATCGAGGA
4. **Bloom's Level:** 2 (understand)
5. Ensure equal point value per letter grade on tests

Handouts: Aligned Exam; Post-redesign Syllabus

SUMMARY

Please...

- Students: ask your professors to do this
- Staff/Administration: suggest faculty ask me about this
- Faculty: adopt this course design

Handout: Resources & Contact

Benefits (Why do this?)

1. Students
 - have course study guide
 - increased sense of self-efficacy?
2. Facilitates **exam writing** and recommendation letter writing
3. SKS comparison provides **feedback to instructors**

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