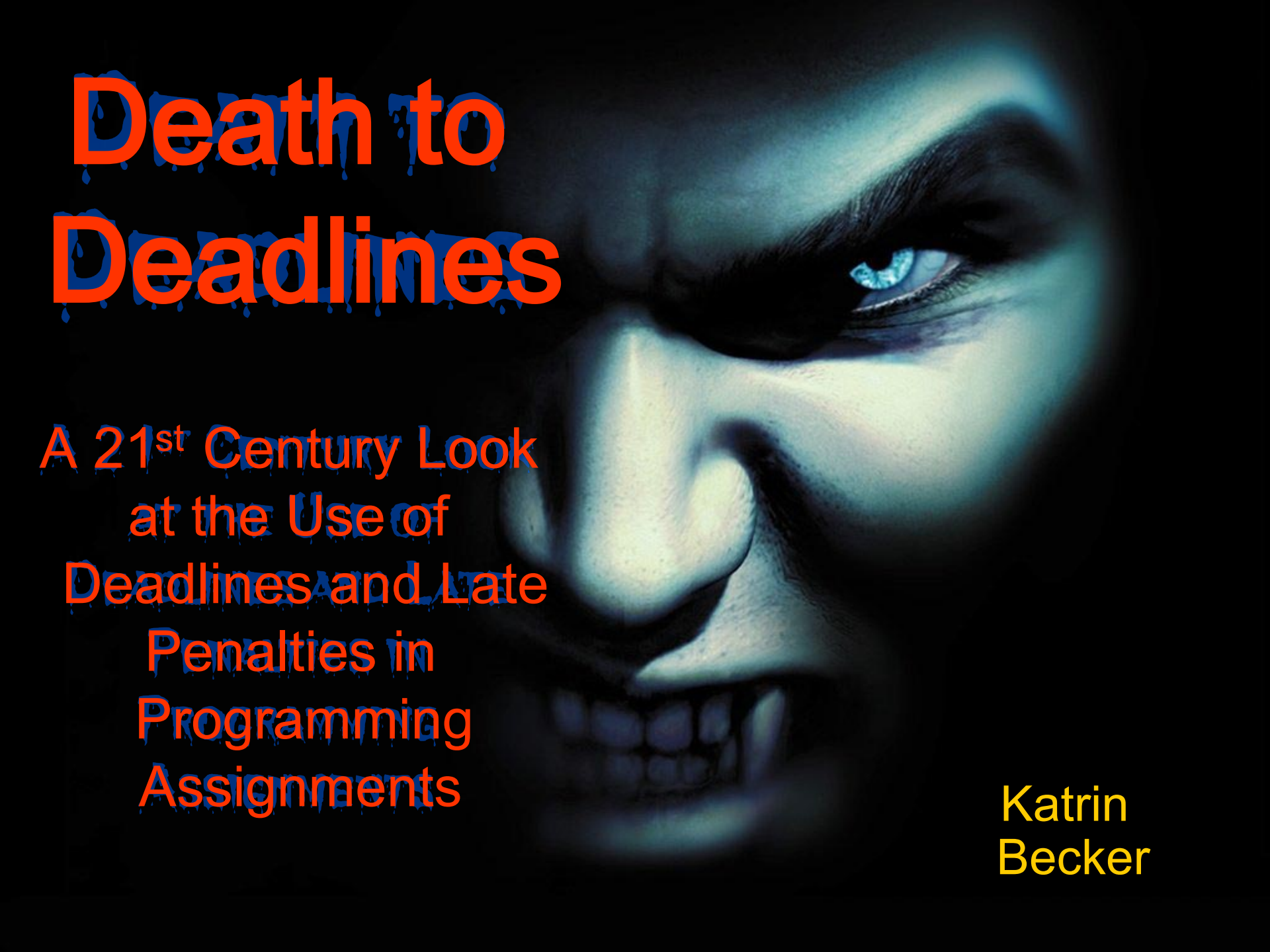# Death to Deadlines

A 21st Century Look at the Use of Deadlines and Late Penalties in Programming Assignments

Katrin Becker
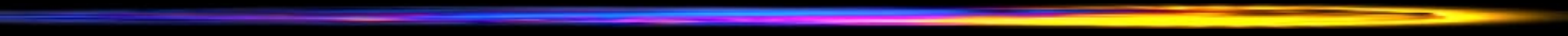
We Need Deadlines...

Because…..

- Must learn to budget time

- Discipline

- Instructor workload

- Order

- Because

Not-quite-golden rule: Do unto others what was done unto you.

Are we really sure that strict deadlines help people learn time management?

(after 25 years of teaching, I'm not…)

Research on Deadlines:

- Distance education
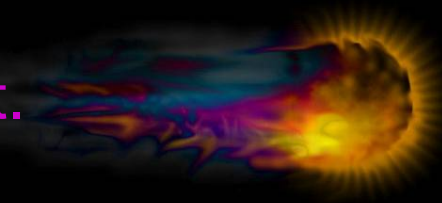- Women and minorities
- "at-risk" (disadvantaged, encumbered, older)

Current Wisdom:
"Extensions mitigate against students' learning how to budget time."

But do they really?

Evidence →
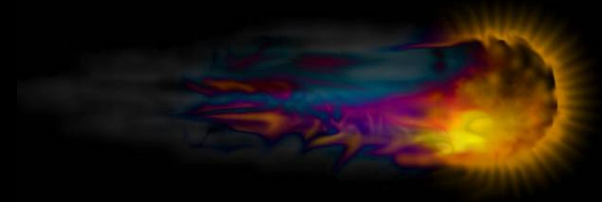deadlines = *when* to work *not* endpoint.

The Incredible Shrinking Enrollments....

What makes CS unattractive?
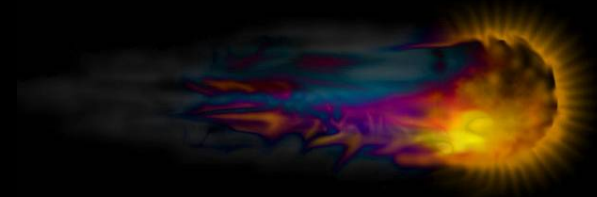
- Excessive workload

- Competitiveness

- Dullness

The Incredible Shrinking Enrollments….

What helps?

- Flexibility ➜ autonomy
- Learner control (ownership)
- Well-defined expectations
- Authentic tasks

What are programming assignments for?

- Experience with language
- Towards understanding fundamental concepts
- Logical program structures
- Sound design
- Clear documentation
- Correctness
- Error checking & recovery

Adherence to deadlines????

Observations

Class Demographics (over 7 years):

CS101: 60->200 students

CS 102: 29 - >150 students

6 assignments / term

Worth 20-30% (last 2 X for CS102: 50%)

Variations on a Deadline

1. Electronically enforced (large class….)

   On time or don't bother.

   Occasional extensions (NOT ideal)

2. 1 letter grade / day late

3. Bonus for "on-time, 3 days' grace, then late

   10-20% consistently earned bonus

4. NO deadlines

5. Bonus for on time + grace + late penalty

Submission Requirements

MUST submit 4/6

- or –

Doesn't matter

Made no difference in rates of submission:

1st assignment = 90% submitted

Close to 100% of students who remained in class
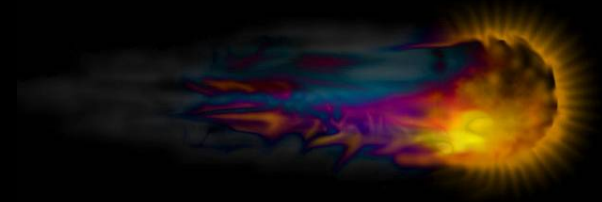
Last assignment = 60-70% submitted

*Deadlines – strict or non-existent **made no difference.***

What was different?

GRADES

Averages went from 'C' to 'B' on assignments.

Can we learn from games???

Quality of learning & will to continue…

– Depends on what goals students bring into the classroom & prevailing in-class rewards structures.

Final Fantasy

© 2006 SQUARE CO., LTD. CHARACTER DESIGN / TETSUYA NOMURA

Typical:

Relative assessment (curving)

leads to competitive ability games

failure-oriented

NeverWinter Night 13

Results:

Failure avoidance, not mastery

Other students become obstacles* instead of allies

* high score = perfect score

Matrix

What can we learn from games?

Reward achievement

Increasing penalties that start low

Opportunities to try again

Clear goals
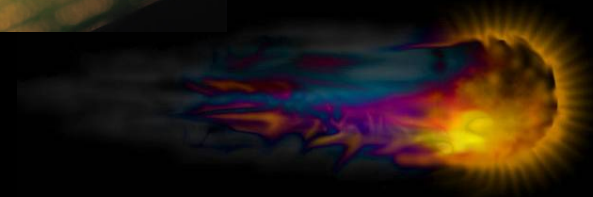
One's achievement not tied to another's failure

Putting Ideas to Use

Descriptive explanations of requirements and how to meet them
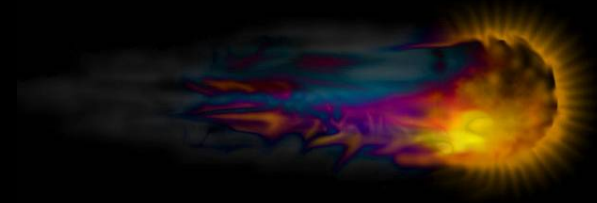
Rubrics

A-B-C requirements

Flexible Deadlines

Benefits

Lowers stress – encourages risk-taking

Places control with student

Can work around life & other classes

Fewer complaints

Fix that last bug

Gender & cultural equity

Reduces risk of cheating?

Costs

Grading process more complex (assignments don't come in 'batches')

Re-submission increases workload (only 10-20% though)

Markers need to be flexible (and competent)

– questions get asked out of sequence & out of context

Instructors must be attentive to students – learning time management becomes explicit

Best Practices
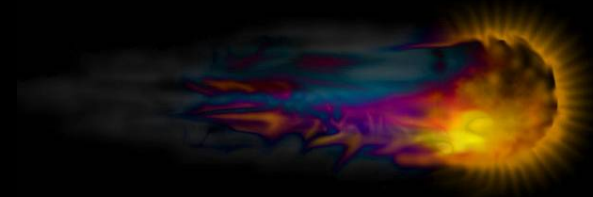
Clear limits
- When
- How often
  - Draw the line

Bonus in favour of penalty
- w/ upper limit for perspective

Limited grace period w/ no penalties

Increasing penalites
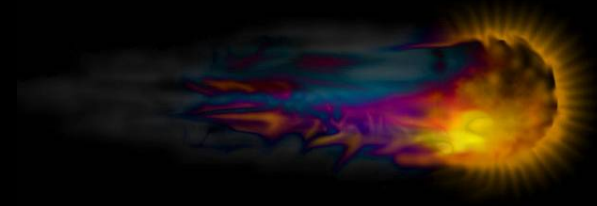
Resubmission (once or twice)

Message

Achievement vs. failure avoidance

Learning vs. hoop-jumping

Collaboration vs. competition

Community of Learners

Increased retention

Thanks