PHYS 320 Poetry Spring 2009

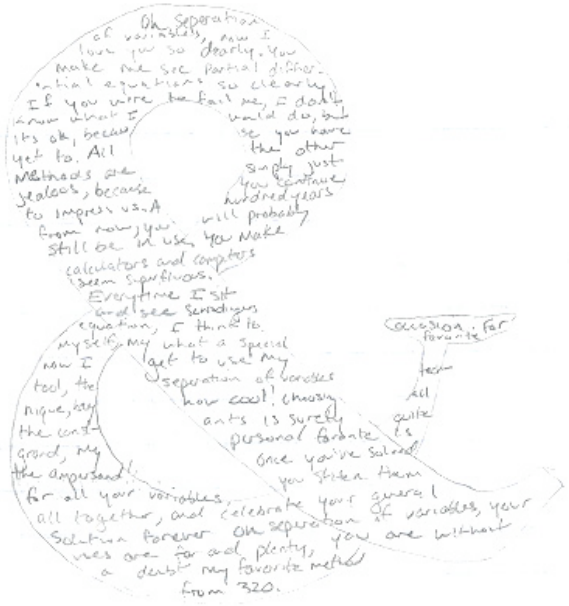
Written in response to the following question of the final exam: "(optional) Compose a poem on one or more mathematical methods of 320. For instance you might write a soliloquy for your favorite Bessel function."

ODE Limerick by Jess Smith
Solution for an O-D-E?
The professor once asked me
After separation
And then integration
The answer was 4χ times 3

Graduation Limerick by Jess Smith
I am on my way to graduation
After finishing this integration
The Bessel is it
Now I can commit
To being on summer vacation

Bessel-let by Andrew Portuguese
To bessel, or not to bessel – that is the question
Whether tis nobler in the mind to suffer
The three dimensions and a Laplacian of outrageous coefficients
Or to simplify the problem amidst a sea of special cases
And by opposing them, get a zero on the problem set. To die, to sleep –
No more – and by a sleep to say we end
The numeric approximations and the inherent lack of precision
That this sad method is heir to. Tis a consummation
Devoutly to be wished. To die, to sleep -
To sleep – perchance to dream about Bessel functions of the 1st kind.
For in that sleep of Bessels what dreams may come
When we have conducted heat in this sylindrical object
Must give us diffusion. There's the normalization
That makes calamity of solutions so long.
For who would bear the whips and scorns of special functions,
The non-periodic roots, the gamma function's integral
The pangs of factorials, the delay of summation,
The insolence of careless mistakes, and the spurns
Of extreme patience when deriving the analytical answer,
When he himself might his [quiet] make
With maple and a handful of keystrokes? Who wouldn't solve
By hand, to grunt and sweat over a weary graphing calculator,
But that the dread od a copying error,
An equation that does not equate, of those who attempt,
Not all travelers return, it puzzles the will,
But it makes us bear the Bessel rather than
Handing the burden to others that we know not of?
Thus special functions do not make cowards of us all,
And thus the native hue of physics
Is preserved with the cast of thought,

And enterprise of great minds (and constitutions)
With this regard their infinite square well turn awry
By adding more dimensions. – Spherical now,
The fair wave function! Correct? In thy orisons.
Be all my negative signs remembered!
~ ~~Hamlet~~ Bessel-let



Ampersand by William Kalbacker
Oh separation of variables, how I love you so dearly.
You make me see partial differential equations so clearly.
If you were to fail me I don't know what I would do,
But its OK, because you have yet to.
All the other methods are simply just jealous,
Because you continue to impress us.
A hundred years from now, you will probably still be in use.
You make calculators and computers seem superfluous.
Every time I sit and see Schrodinger's equation,
I think to myself, my what a special occasion.
For now I get to use my favorite tool,
The separation of variables technique, boy how cool!
Choosing all the constants is surely quite grand,
My personal favorite is the ampersand!
Once you've solved for all your variables you stitch them all together,
And celebrate your general solution forever.
Oh separation of variables, your uses are far and plenty,
You are without a doubt my favorite method from 320.

Panic by Julia MacDougall
Oh no, I say,
As QPS enters the finals week fray!
What to do, what to do?
Look around for some sort of clue,
A hint; a glimmer of the answer,
While doubt grows in me like a cancer.

Who to call; who to call?
Not the Ghostbusters, not at all,
But the function of Bessel!
It powers the vessel
Of the 320 knowledge,
And may allow me to graduate college.

Ode to Bessles by Julia MacDougall
Functions denoted, "J"
You take my worries away.
The cylindrical symmetry
Arouses a great love for you in me.

You have different degrees
Like the temperament of bees.
Relations of recursion

For which I have no aversion –
You are my hero:
You help me prove that $J_2(ab) = 0$
I end this poem with only praise:
May the use of Bessel, my grade raise.

Untitled, or A Visitor by Lou Vilardo
Alone, I wait for someone,
Something to take me
Out of this spinning world.
I long for stability,
For starred coordinates.
I have had enough of
Solving problems that move past me.
Too many challenges have
Spun out of control and
Left me cold in the night.

Then, I hear something.
Is that you, non-inertial reference frame?

Poem 1 by Will Bauder
Oh Sturm-Louville Theory
I love you so.
Though what you mean
I hardly know.

Poem 2 by Will Bauder
solutions a**B**ound
in **E**very root
though con**S**tant
period**S**
you hav**E** not,
through tab**L**es i'll search
till the e**N**ℓd of time
are you self-a**J**ℓoint?

Ode to Laplace Transforms by Tim Minella
A difficult differential equation?
Whatever shall you do?
There is a simple action
I'll give from me to you.

First take the integral of the equation
Times "e" to the minus "st,"
And as far bounds of integration,
Use zero to infinity.

Now rearrange your new result,
Plug in initial conditions.

Be careful not to make a fault
And mistakenly mess up your functions.

Open up Maple, whom many have loved,
And use inverse Laplace.
Voila! Your ODE is solved.
Laplace transforming, my gosh!

Bessy by Glenn Smith

The cylinder stood tall on the ground
Yet nowhere could a solution be found
The math behind it was quite messy
Because no one had heard of Bessy.

O' Great Legendre by Juan Hurtado

O' great Legendre,
O' great Bessel,
O' great Laguerre,

You[r] great minds, and us
We follow where you lead us.
[Or as pupils you blind us].

Yet we thank you, for who else would help us,
When the mysteries of a universe abound
And with your work we try to expound
[Upon] answers to these uncertainties.

Every time I see your names I tremble
But then to Schrodinger's I go, and revel
For lo, there it is,
The answer, and our bliss.

A Series of Special Function Haikus by David Goldberg

You may ask yourself,
Are special functions that great?
Go without, and hate.

Whenever you see
Cylindrical symmetry,
Bessel it for me!

Quantum bouncing ball
Might be the best toy ever.
Perhaps too Airy.

Electron in H?
Associated Laguerre,
A "rad" solution!

One day you may see
Expansion of Potential.
Legendre's your man.

What a pretty plot!
These polys also make nice
Chebyshev filters

There is no free beer
At this Gamma Function, but
Fine factorials.