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Doing The Numbers: The Numerate Lawyer And Transactional Law

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Dear Professor,

I am responding to your request for comments regarding the course in Corporations. I was one of those who could profess no prior experience with business at the outset of the course. I am most challenged by “Balance Sheet.” These are the dark magic words that bring forth the demons of chaos. Once you incant these words you begin to speak in tongues and you write strange symbols that cloud the mind. You take those numbers, which seem like so many orphans on the street and you move them about finding them homes. You scribble on the board for a bit and then turn about with that “whole face, about to chuckle I am so pleased, isn’t this mountains of fun” smile, and I want to bang my head on the table till the bad woman goes away. Still, it is not your fault that the course is so dreadfully horrible. Math is a thing so terrible that it defies description. Poets, who can grasp the terrors of war and death, pain and suffering, have never been able to capture that dark aspect. It is the incarnation of evil, it comes in many forms and guises, and in your class it calls itself “Balance Sheet.”

Anon.¹

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Letter from anonymous to author (on file with author) (omitting text and grammatical corrections).
INTRODUCTION

Over the years, I have received thousands of responses to my mid-semester request for anonymous comments about my Corporations class. Although few are so eloquent as the note set out above, no small number share its message. More succinctly, one student put it, “If I could do math I would have gone to medical school.” My plaintive correspondents modestly tend to phrase their laments in strictly individual terms, but others do not. Notably, First Lady Michelle Obama has said of her own experience with math and science, “I know for me, I’m a lawyer because I was bad at these subjects.” She then generalized with, “All lawyers in the room, you know it’s true. We can’t add and subtract, so we argue.”

This Article begs to differ. As Part I discusses, not only is it possible for lawyers to add and subtract, but they even can multiply and divide. As Part II describes, it also is necessary for them to do so, and not just when they are billing their clients and figuring out whether their partners are cheating them. They frequently are called upon to give legal advice that requires the


3. Id.]
derivation and interpretation of – pardon the expression – numbers. This is particularly, although not uniquely, true in the context of transactional lawyering. Part III discusses the impediments to enhancing numeracy through legal education, and Part IV advances proposals for overcoming those impediments.

I. THE QUESTION OF CAPACITY: ARE LAWYERS AND LAW STUDENTS INNUMERATE?

“Innumeracy” is a fancy word for “bad at math.” Its converse, “numeracy,” does not mean “good at math.” It simply is the numbers-referent equivalent of literacy, but more specifically has been defined as “includ[ing] an understanding of subjects such as basic numbers, orders of magnitude, algebra, and probability and statistics.” To either elucidate or complicate matters, “innumeracy” is sometimes characterized as the result of either an “objective” lack of math competence or a “subjective” lack of math confidence.

A. Objective Innumeracy

Michelle Obama is part of a far larger cohort that appears to take the position that lawyers are objectively innumerate (although, to be fair, some of her remarks accompanying those quoted above might be taken as a reflection on subjective innumeracy). This position is not without reason: in a recent article, an author suggests that objective numeracy may be “produced either by cognitive disability [a condition known as “dyscalculia”] or by a persistent failure to engage with numbers and calculations.” She logically goes on to observe, “Because of the widespread perception that lawyers are not – and need not be – good at math, it seems likely that dyscalculiac individuals are overrepresented in the law [compared to other professional fields].” Still, when law students

6. See Remarks of the First Lady, supra note 2 (“And so encouraging girls early not to lose heart in those fields, and encouraging them through high school is important.”). The quoted language suggests that girls can do better with encouragement, thus establishing they are not believed to be objectively incapable of doing so.
7. See Milot, supra note 5, at 800 nn.148–49 (taking pains to distinguish objective and subjective innumeracy). Dyscalculia is suffered by 5–7% of the general population. Id.
8. Milot, supra note 5, at 801; see also id. at 801–02 n.158 (providing statistics to illustrate the large number of students entering law school without a mathematical
actually were studied, good news emerged. No matter how lawyers and law students think about themselves, they probably are not, as a group, objectively innumerate. This was determined using a standard, three-question test for numeracy which, given the irresistible allure of do-it-yourself testing, is set out below (with answers in the accompanying footnote):

(1) Imagine that you flip a fair coin 1,000 times. What is your best guess about how many times the coin will come up heads?
(2) In the Big Bucks Lottery, the chance of winning a $10 prize is 1%. What is your best guess about how many people would win a $10 prize if 1,000 people each buy a single lottery ticket?
(3) In Acme Publishing Sweepstakes, the chance of winning a car is 1 in 1,000. What percent of tickets to the sweepstakes win a car?9

When this test was first administered to takers who might be described as “the general public,” about fifty percent of the respondents correctly answered the first two questions; only twenty percent were able to correctly answer the third.10 Thirty percent were unable to answer a single question correctly and only sixteen percent got all three right. By contrast, when the same test was administered to University of Illinois law students,11 slightly over eighty-five percent answered the first two questions correctly; that happy result fell to sixty-nine percent for the third question.12 Fifty-seven percent got all three right and slightly under three percent got all the questions wrong.13 The law student outcomes did not significantly deviate from those achieved by a test population comprised of highly-educated non-lawyers, leading the authors of the 2012 study to conclude that education level is correlated with numeracy, whereas the choice to pursue a legal career is not.14

9. The test was developed by Lisa Schwartz, Steven Woloshin, William Black & Gilbert Welch, *The Role of Numeracy in Understanding the Benefit of Screening Mammography*, 127 ANNALS INTERNAL MED. 966, 1038 (1997). The answers are, respectively, 500; 10; and .1%.
10. *Id.* at 969.
12. *Id.* at 16–17.
13. *Id.*
14. *Id.* at 43–44.
B. Subjective Innumeracy

Lack of confidence in one's ability to do math may be the result of math anxiety, an identified biological phenomenon that causes tension or fear in those who are objectively numerate.\(^{15}\) A second asserted cause is a self-perception of relative incompetence: someone who is highly skilled at verbal tasks and somewhat less strong in math may simply perceive him- or herself as "bad" in the latter category.\(^{16}\) For instance, students who perform better on the verbal parts of the Scholastic Aptitude Test ("SAT") may tend to give up on math – and ultimately wind up in law school.\(^{17}\)

It certainly is possible to disaggregate math competence and math confidence in some circumstances. Thus, people who have not been taught any new math skills but who perform better on math tests after being treated for math anxiety would not properly be regarded as objectively innumerate. Moreover, people who score in the 99\(^{\text{th}}\) percentile on the verbal parts of the SAT and in the 95\(^{\text{th}}\) percentile on the math portion should not be regarded as objectively innumerate, no matter what they say or think about themselves. On the other hand, if people who subjectively but incorrectly perceive themselves as bad at math subsequently "persistently fail to engage with numbers and calculations," it seems they might succeed in rendering themselves innumerate by at least some objective standards. Conversely, it would seem quite possible for someone who is objectively innumerate by reason of lack of education to achieve numeracy if not prevented from doing so by lack of confidence. In any event, it seems entirely likely that people who genuinely are bad at math – by reason of dyscalculia or lack of education – would know it and thus lack confidence as well as actual competence. Indeed, the study of numeracy in law students described above did find a very high correlation of objective innumeracy and lack of confidence.\(^{18}\)

C. A More Practical Path

Rather than becoming lost in what is either an objective or subjective thicket about types of innumeracy, it ultimately may be more meaningful for law schools and individual law students to focus on the following questions:


\(^{16}\) See Milot, supra note 5, at 807–08 (discussing self-perception of relative incompetence).

\(^{17}\) See David A. Hyman, *Medicare Meets Mephistopheles*, 60 WASH. & LEE L. REV. 1165, 1168 n.12 (2003) (commenting that most law professors had higher scores on the verbal portion of the SAT than on the math portion).

\(^{18}\) Rowell & Bregnant, supra note 11, at 17.
Is an individual contemplating a career path requiring significant engagement with numeric tasks? Although this question may be a difficult one, and one many law students may be reluctant to answer affirmatively, subsequent parts of this Article make the case that some types of law, including transactional law, do require such an engagement. If a path of this sort is not contemplated, however, the remainder of the questions need not be addressed.

Does the individual in question suffer from dyscalculia? If so, he or she probably should find a different career path or devise some method of partnering with someone who can compensate for the disability. In contrast to the first question, this one should not be difficult to answer. People typically would not make it into, much less through, college without having this condition diagnosed and appropriately accommodated.

Does the individual in question suffer from math anxiety? If so, he or she should get treatment. Math anxiety presumably is less obvious than dyscalculia, but if one has it, he or she probably did quite poorly on standardized math tests unless an appropriate accommodation was made. If treatment is not an option, or is not successful, see the suggestion made in (2).

Does the individual in question really lack basic math skills? Come on folks! Did you or did you not graduate from high school? If the answers to (2) and (3) both are “no,” and we are talking about someone in law school, the answer to question (4) should never be “yes.”

D. Is “Not Bad” Good Enough?

Submerged in the questions presented in Part I.C is one question that is arguably transcendent. Assuming that most law students (and presumably lawyers) are not bad at math, and actually are better at it than the population at large, is that good enough? Are they – or can they be – prepared and ready to deal with numbers as they present themselves in practice? As an analog, one might say that a determination that law students are not illiterate is reassuring. A determination that their literacy achievements are somewhat higher than those of the general population is more reassuring still. It does not, however, mean that law school has nothing to teach them about how their literacy skills should be employed. In the numeric context, this basic logic requires supplementation by an analysis of the numeracy demands actually made on transactional lawyers.

19. See id. at 44–45.
II. THE QUESTION OF WHAT IS REQUIRED: WHAT ARE THE NUMERIC DEMANDS OF THE TRANSACTIONAL LAWYER’S JOB?

Judge Stanley Sporkin asked, in connection with a wave of scandals that washed over the thrift and savings and loan industries in the 1980s, “Where . . . were the . . . attorneys . . . ?”20 This question resurfaced in the wake of the collapse of Enron,21 and sounded again in response to the financial collapse popularly believed to have started in 2008.22 My guess is that at least some of those lawyers were exactly where I tell my students they don’t want to be: off in the corner, hiding from the numbers and quaking with fear.

In transactional law, numbers have always been with us. Indeed, since transactional lawyering almost inevitably involves measured quantities of money, there has been no getting away from math – except, perhaps, in the classroom. As to the basic claim, anecdotal evidence abounds: simply ask someone who practices or has practiced in the area (the author of this Article, for instance). As a resource, Michael A. Woronoff, a practitioner and adjunct professor of law at UCLA, has offered what he refers to as a “quite obviously incomplete” list of tasks “commonly performed by transactional lawyers, each of which requires some level of numeracy.”23 The tasks he identified include (with many other examples) the negotiation and monitoring of anti-dilution provisions, earn-out conditions, purchase price adjustments, subordination provisions, exchange ratios, and financial covenants.24 Other obvious illustrations include advising on and negotiating partnership profit-sharing arrangements,25 consulting on the legitimacy of dividends,26 and (especially in California, where the subject is taken particularly seriously)27 explaining how corporate cumulative

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24. Id.
27. See CAL. CORP. CODE §§ 301.5, 708, 708.5 (West 2010) (providing for cumulative voting by the shareholders of all companies that are not listed for public trading).
voting works.\textsuperscript{28} One really cannot, after all, just hand a client a copy of the relevant statute and head off to that corner to shiver.

A simple contemplation of familiar case law also generates sumptuous anecdotal evidence of the importance of numbers. As a single example, consider Litwin v. Allen, which appears in many Corporations casebooks.\textsuperscript{29} Litwin involves the duty of care owed by the members of a corporate board of directors and the issue of whether the substance of a board decision should by judicially reviewed for lack of prudence. The text includes the following summary facts:

Not being able to [take] a loan [because of debt restrictions in its charter], the way that Alleghany could raise the necessary funds was by sale of some of the securities that it held. Among them was a large block of about $23,500,000 of Missouri Pacific convertible 5 ½ debentures. These were unsecured and subordinate to other Missouri Pacific bond issues. They were convertible into common stock at the rate of ten shares for each $1,000 bond. In 1929, Guaranty Company had participated to the extent of $1,500,000 in the underwriting of these bonds at 97 ½. At one time in 1929, the bonds had sold as high as 124 and had never gone below par except in November 1929 when they sold at 97. Between October 1 and October 10, 1930 Missouri Pacific common stock had dropped from 53 to 44. There was a decline in the bonds from 113 in April 1930 to 107 on October 1, 1930, and thereafter a decline of about two more points to 105 ½ by the date of the consummation of the transaction we are considering on October 16, 1930.

The Van Sweringens suggested that $10,000,000 of these bonds be sold to J.P. Morgan & Co. for cash at par, the latter to give an option to Alleghany to buy them back within six months for the price paid.\textsuperscript{30}

The lawsuit in question challenged the decision of the board of directors of a bank to participate, along with J.P. Morgan, a related entity, in the purchase of the bonds described.\textsuperscript{31} The punch line of the case is that the decision to participate was "so improvident, so risky, so unusual and unnecessary as to be contrary to fundamental conceptions of prudent banking practice."\textsuperscript{32} The underlying reasoning is summarized in the

\textsuperscript{28} William Meade Fletcher, Cumulative Voting, 5 Fletcher Cyc. Corp. § 2048 (2012).
\textsuperscript{30} Id. at 692.
\textsuperscript{31} Id.
\textsuperscript{32} Id. at 699.
court's observation that "any benefit of a sharp rise in the price of the securities is assured the seller and any risk of heavy loss is inevitably assumed by the bank." This observation focuses only on the fact, described in the second paragraph quoted, that the seller had an option to repurchase the securities. It is more-or-less oblivious to that first nasty paragraph with all the mysterious numbers.

On inspection, however, the nasty paragraph reveals that the bonds were trading above their face value (105 1/2 as opposed to a "par" value of 100), which tells us that they carried an interest rate in excess of market. Moreover, the bank bought the bonds at their face value (100) and thus was receiving something the market value of which (105 1/2) exceeded the amount paid. Because everyone conceded that the transaction was simply a disguised loan (the propriety of which is admittedly more than a little questionable), the bank had made a loan secured by collateral in excess of the loan amount and was assured an interest rate that exceeded then-market. Moreover, if the loan was not repaid, the bank would be spared the cost of foreclosure, since it already held title to the collateral. It is true that the loan was not in fact repaid and the value of the collateral steeply declined, but stuff like that happens - and the court itself at one point mouths the usual party line (well-known as the "business judgment rule") that directorial decisions are not to be judged in hindsight. It also is true that the borrower was not obliged to repay the loan and that the bank effectively was prevented from selling the bonds for six months, but banks are not exclusively limited to holding highly liquid investments.

Litwin sometimes is cited as an indication that, notwithstanding the business judgment rule, there is some minimum rationality test that the substance of directorial decisions must pass - more-or-less the equivalent of considering application of the doctrine of waste. Sometimes the case is dismissed as an aberration, or is taken to be an illustration that directors of financial institutions are - or were in 1940 - subject to more demanding standards than the directors of other companies. It has prompted

33. Id. at 698.
34. See id. at 700 (discussing standard for reviewing directorial decisions).
35. Id. at 695–96.
36. Id. at 699.
37. Id. at 701.
speculation that the court was responding to a conflict of interest that fell short of a breach of the duty of loyalty.40 One might also read it as a public policy message to bankers who think it’s a dandy idea to help borrowers evade their debt restrictions.

It is, however, a rare student who does not read Litwin and simply agree with the court’s “tails the bank loses, heads the borrower wins” analysis. Many simply avert their eyes from “the nasty” and do not see the transaction’s possible benefits to the bank (the above-market interest rate and above-loan-amount collateral). Until those benefits are understood, it really is impossible to discuss, much less appreciate, the issues that Litwin presents. It presumably also would be very difficult to advise a board of directors with respect to the liability that might be incurred for approving certain types of transactions, particularly those involving novel schemes.

III. THE QUESTION OF WHAT’S STOPPING US: WHAT ARE THE IMPEDIMENTS TO TEACHING NUMERACY TO LAW STUDENTS?

There are at least four easily identified impediments to teaching numeracy to would-be transactional lawyers and, perhaps, law students in general. The first three are intimately related: law student enthusiasm, if not capacity; professorial enthusiasm, if not capacity; and, the infamous message that lawyers are not and therefore do not need to be good at math. The fourth, foreshadowed faintly above, is a bit different: the methods we use to teach first-year students to “think like lawyers” are distinctly likely to disincline them from rolling up their sleeves and doing any math.

A. In Some Order: Law Student Capacity and Enthusiasm, Professorial Capacity and Enthusiasm, and the Infamous Message that Lawyers Are Not, and Therefore Do Not Need To Be, Good at Math

The discussion in Part I was intended to address, and dispose of, the argument that law students (and therefore, presumably, lawyers) cannot do math. It leaves unaddressed the question of their enthusiasm. The discussion in Part II was intended to address, and dispose of, the implicit claim that lawyers – particularly transactional lawyers – do not need to do math. It does not, however, describe how to deal with the message itself. Completely unaddressed thus far, is the idea that “[m]any law professors share the math aversion of their students, so that the numerical aspects of cases are often left unexplored in class or edited out of casebooks.”41

41. Milot, supra note 5, at 771.
The notion that law professors are unenthused about math seems to be untested, but is oft-repeated. If it were to be true, it could be the result of objective innumeracy. This seems unlikely, given that law students do not seem to be objectively innumerate. On the other hand, law professors are generally older than law students and it is possible that our once-extant math skills simply have atrophied through disuse — although one perceives a kind-of-a-chicken-and-egg thing going on. Might it any more plausibly be the result of subjective innumeracy? Law professors generally are not known for their lack of confidence, although one could easily believe that we would prefer to exhibit our greatest, rather than our second-best, strengths in the classroom.

There may, however, be three other reasons law professors might be disinclined to do the math. One is the perception that law students do not like it, even if they arguably could do it. If one is known as teaching a math-intensive version of a class that others are teaching numbers-free, enrollments and evaluations may suffer. Another is the idea that teaching law students to do math is not our job. Someone else was supposed to do that along the line, weren't they? The rebuttal to this point is that although we expect students to know how to read when they come to law school we also teach them to read — cases and statutes, that is. We should be just as willing to teach them how to do math — as it applies to legal questions.

The third, and most problematic explanation for lack of professorial enthusiasm for teaching math is the “hours in the day” (as in “there are only so many”) justification. It is ever so true that the law’s cup runneth over: there are more laws and legal developments every year, and very few exit either by way of revocation or desuetude. The question of coverage, however, will always be with us. Anyone who covers, or even aspires to cover, the entirety of a casebook probably would be a rarity. Many of us traditionally have salved our consciences with the idea that the law school enterprise is about teaching thinking, not content. If one accepts that lawyers frequently need to apply mathematical principles, one simply must bump something else from the line-up.

42. See id. (speculating about lack of professorial enthusiasm for math teaching); see also Daniel Keating, Ten Myths About Law School Grading, 76 WASH. U. L. Q. 171, 171 (1998) (characterizing law students and law professors as quite possibly math-phobic).

43. See generally John D. Copeland & John W. Murry, Jr., Getting Tossed from the Ivory Tower: The Legal Implications of Evaluating Faculty Performance, 61 Mo. L. REV. 238, 239 (1996) (discussing importance of student evaluations in one’s law teaching career).

B. Thinking Like a Lawyer

This Article is not the place to get down and dirty on exactly what “thinking like a lawyer” means or what the best method of teaching that skill might be. We presumably can agree that the process begins in the first year and indeed does involve some enhancement of the ability to distill general principles and then to apply them to differing facts.

Imagine, then, a student who is called upon to recite the facts of Petterson v. Pattberg, a hoary old chestnut appearing in many contracts casebooks. He or she might start with something like “John Petterson, of whose last will and testament the plaintiff is the executrix, was the owner of a parcel of real estate in Brooklyn, known as 5301 Sixth Avenue.”

The professor, stifling an inner sigh and outer eye roll, might gently interrupt to ask some sequence of questions including “Does it matter what the address of the property is? Does it matter that the property was in Brooklyn? Does it matter what the decedent’s first name is? Does it matter that the original owner of the property is dead?”

Moving on, the student might say, “The defendant was the owner of a bond executed by Petterson, which was secured by a third mortgage upon the parcel. On April 4, 1924, the unpaid principal was $5,450. This amount was payable in $250 installments on the 25th of each month.”

The professor then might helpfully inquire, “Does it matter that the bond was secured by a third mortgage? Would the outcome have been different if it were a second or first mortgage? Does it matter how much the installments were? Does it matter what the unpaid principal amount was?”

And so on, but you get the general idea. Eventually, the student might concede that the facts can be distilled as follows:

The defendant owned a bond executed by Petterson. He offered to accept a reduced principal amount if the next installment was paid on time and the specified amount was paid in cash by a stated date. Petterson paid the next installment on time and approached the defendant’s house before the stated deadline. He knocked on the door and stated that he had come to pay off the bond. The defendant shouted through the door that the bond had been sold. Petterson then exhibited the cash but the defendant refused to accept it.

46. Id.
47. Id.
48. Maintaining the last name to avoid discussing the executrix, who was not the person who executed the bond.
49. This is not, of course, a direct quote; it is a hypothetical student answer summarizing the facts of Petterson.
This version is streamlined, numbers-free and still leaves the professor with plenty to talk about.

Obviously, the distillation process can be criticized as leading to the loss of more than just numbers. When we edit the parties’ first names we often lose their gender. Losing the grisly details of crimes may reduce emotive responses we actually might prefer to maintain. Inevitably, when discussing efficiency in the abstract, little bits of reality tend to disappear. Concern with loss of emotion and other parts of reality is something that some feminists have written about at length and has led to approaches emphasizing detail-rich experience over abstraction. These approaches have, in turn, been criticized for the inevitable “essentializing”—or abstraction—of experience itself, because discussing the experience of one or a few tends to regard the essence of that experience as representative of the experience of others.

As a practical matter, of course, some amount of abstraction is unavoidable. It is inherent in human thought processes and attempts to communicate. Speech is about using words as symbols. Speech can also channel thinking and, to some extent, create realities that might not otherwise exist—or, at any rate, assign significance to occurrences that otherwise might be ignored. Thus, naming has a tendency to make things “real”—or, at any rate, significant. Talking about “glass ceilings” may, to at least some, make them “real,” leading women to shy away from achievement of particular sorts. Talking about lawyers’ inability to do math will lead some lawyers to assume there is no need to try.

54. See, e.g., ELIZABETH SPELLMAN, INESSENTIAL WOMAN: PROBLEMS OF EXCLUSION IN FEMINIST THOUGHT 179 (1988); Angela P. Harris, Race and Essentialism in Feminist Legal Theory, 42 STAN. L. REV. 581, 585 (1990).
One should not, of course, lose track of the fact that numbers are also symbols. It thus is worth thinking about whether the abstraction inherent in the use of numbers might sometimes obscure, rather than enhance, both reality and analysis of general principles.

C. Thinking Like an Economist

Perversely, one of the schools of legal analysis least averse to numeric exercise is also sometimes accused of losing sight of reality. This is the school of law and economics. Commentators have both noted and demonstrated the school's math proclivity; also illustrative are approximately fifteen pages of dicta recently produced by Seventh Circuit Judge Richard Posner on the subject of the proper method of conducting a simple linear regression.

With respect to the second proposition (loss of sight of reality), consider the following, composed in the context of an analysis of the importance of limited liability in corporate law:

Recall, once again, the economists' conclusion that a rule of limited liability for shareholders simply duplicates, at a lower cost, the agreement that shareholders would reach with voluntary creditors. The larger the group of voluntary creditors... the greater the explanatory power of the model. ... The range of voluntary creditors thus includes, along with traditional institutional lenders and bondholders, such classes as suppliers, customers, and employees. In terms of economic theory, then, consumers who are injured by an insolvent corporation's defective products hypothetically have bargained in advance for price concessions to reflect the possibility that both injury and insolvency would occur. Taxi cab passengers, injured by a driver's negligence, supposedly made a similar bargain. Employees of corporations, cannily contemplating the possibility of corporate bankruptcy prior to payment of wages in arrears, hypothetically demanded higher wages than they would have required had they gone to work for partnerships.

The tone of the quoted material presumably conveys some amount of skepticism about the assumptions underlying the economic analysis


58. See generally ATA Airlines, Inc. v. Fed. Express Corp., 665 F.3d 882 (7th Cir. 2011).

59. Gabaldon, supra note 52, at 1411–12.
described. If those or similar assumptions are reduced to mathematical symbols and presented as part of an equation, or otherwise made the basis of a complicated math exercise, they are made no more valid. In other words, a pig with lipstick is still a pig, and unrealistic assumptions under a layer of math are just as porcine.

IV. THE QUESTION OF WHAT TO DO: HOW SHOULD MATH SKILLS BE TAUGHT IN LAW SCHOOL?

A number of years ago, the question of whether legal ethics should be taught was resolved in the affirmative by the American Bar Association's Committee on Law School Accreditation. How best to teach the subject was a matter of what passed, in law school circles, for hot debate. A threshold question was whether professional responsibility should have a class of its own or whether it should be integrated into courses on other subject matters. Most law schools opted for a separate course, which perhaps registers a composite opinion with respect to the relative effectiveness of the instructional methods considered. That said, many, if not most, law teachers do make some effort to integrate some amount of ethical instruction into their courses on other subjects.

We obviously stand at a different juncture vis-à-vis math instruction, which has not been mandated. Still, if one is inclined to reason by result (or to obtain proof by tasting pudding), the experience of law schools with the professional responsibility mini-brouhaha suggests a collective conclusion with respect to the efficacy of the separate course and integration approaches: a combination probably is best. Happily, as described below, in the case of math skills, the combination approach is something that can be relatively easily achieved in individual courses. Implementation may, however, take both will power and persuasion since students lacking math confidence may vote with their feet.

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65. See Rhode, supra, note 63, at 50–56.
1. **Step One: Speak the Truth**

If there will be math instruction of any kind, there will be students in class on the first day who are sitting on the fence – word will have spread even if the syllabus hasn’t been posted. They should be clearly informed of expectations but also reassured that they not only are fully up to the task but also are in good company with respect to their lack of confidence. Most importantly, they should be assured that although math is a necessary component, it is not the entire focus of the class.

2. **Step Two: Back to Basics**

It probably is a good idea to set at least one class hour aside, quite early in the semester (but emphatically not on the first day), for separate math coverage. The content would differ depending on the class, but a course like Corporations seldom will involve more than a review of what virtually every student learned in high school or middle school. Indeed, virtually every student did at one time know how to add, subtract, multiply, and divide – and with decimals, no less! In fact, he or she even once knew how to “solve for x.” It definitely is worth the time both to review basic calculations with decimals and to work several problems of the “solve for x” variety, because it is handy for working cumulative voting problems and critical in understanding the role of return in determining value. The review should segue into preview by explaining a couple of simplified “real” problems. These might include something like: "Assume you paid $100 for a bond with an interest rate of 10%. Prevailing interest rates are now 5%. How much would someone pay for your bond?"

Speaking of basics, not only is math a throwback to high school or earlier, it lends itself to throwback teaching methods. It is very easy to give math problems for homework and/or to administer quizzes on the subject. If the problems and/or quizzes count toward their grades, students will be inclined to take them more seriously (going out on a limb, perhaps, but a pretty sturdy one). In any event, law students crave feedback and generally will appreciate even self-checked exercises.

3. **Step Three: Use It or Lose It**

Once the basics have been reviewed, it is a good idea to make sure that numbers are actively employed on a regular basis. In a course like

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66. See generally Heminway, Woronoff & Johnson, supra note 4.
67. This is, of course, in the spirit of Litwin v. Allen, 25 N.Y.S.2d 667, 699 (N.Y. Sup. Ct. 1940), discussed supra at notes 29–37.
68. Assuming the equivalence of risk, the relevant calculation is $10 = .05x$, or $200.
Corporations, they do not have to be the focus of every class session, much less every case, but having a close encounter with math on at least a weekly basis will help the students maintain their refreshed abilities and, hopefully, build their confidence.

4. **Step Four: Logic vs. Math**

It is worth recurrently noting for students that sometimes when they think they do not understand some major math mystery, they actually are confused about logic. This is particularly the case when there is discussion about basic accounting principles. For instance, understanding the dreaded balance sheet (as surely any competent transactional lawyer must) requires remarkably little in the way of math skill. At an introductory level, the basic equation of Assets = Liabilities + Equity can pretty easily be described as "A company has a pie as its only asset. Where did the pie come from? Some ingredients were contributed by shareholders. Some were loaned by creditors. Who gets to eat the pie? The creditors get their promised share first. What’s left belongs to the shareholders." That means, of course, if you want to figure out what belongs to the shareholders you subtract liabilities from assets. How hard is that?

5. **Step Five: The Final Step**

As suggested above, it is likely that students will embrace mathematic instruction a bit more thoroughly if their mastery affects their grades. Even if math is not made the subject of graded homework or quizzes, if class time is spent on it there is absolutely nothing unfair about embedding it in the final exam—assuming only that true dyscalculiacs and those with true math anxiety receive counseling and appropriate accommodation. From the professorial perspective, the benefits of testing the ability to apply mathematic concepts in legal contexts include relative grading ease.

**CONCLUSION: BALANCE IS BEST IN ALL THINGS**

This Article started with a letter submitted to me anonymously. When I first received it, I immediately read it to the class, the members of which howled with laughter. Every year, about half-way through the course, I read it out loud with the same result. I frequently have students come up after class to say, "That’s right! That’s just how I feel!"

69. Some the company may have grown itself, making use of what the shareholders and/or creditors made available, but that’s a later hypothetical, as is the possibility that the pie is more valuable than its raw ingredients.

Several years after beginning this tradition, I attended an alumni event. A young man whom I recognized as a former student diffidently approached me. He said, “Professor Gabaldon, it was me. I wrote the letter about balance sheets. I heard from one of our new associates that you still read it.” After thanking him and complimenting him extravagantly, I asked him where his legal career had taken him. With an enormous but slightly embarrassed grin, he replied that he was working for a firm in Silicon Valley specializing in representing venture capitalists – and that he had, indeed, learned to read balance sheets.

This story seems too good to be true, but it is. It also provides a moral too obvious to require stating. Instead, I will conclude with an observation. Outside of dedicated courses such as Quantitative Methods for Lawyers and Law and Accounting, incorporating math in legal education is a balancing act. Issues relating to coverage and student enthusiasm are very real. Some teachers might prefer having a reputation that does not involve being “the bad woman” who enjoys math a little too much. Those of us who choose, however, to believe in a literal interpretation of the motto “there is strength in numbers” will be undeterred. We should also take to heart the more mainstream interpretation of the aphorism and do what we can to enlist colleagues throughout the curriculum in the effort to embrace and enhance the numeracy of the profession.