Errata for "An Introduction to Stochastic Differential Equations", AMS Press
by Lawrence C. Evans

Last modified: February 18, 2025.

CHAPTER 1

CHAPTER 2

CHAPTER 3

CHAPTER 4

CHAPTER 5

page 89, line -13: Add "when Y_1 is nonrandom". When Y_1 is random, the formula for the variance is

$$V(Y(t)) = V(Y_0) + \frac{(1-e^{-bt})^2}{b^2}V(Y_1) + \frac{\sigma^2}{b^2}t + \frac{\sigma^2}{2b^3}(-3+4e^{-bt}-e^{-2bt}).$$

I thank to N. Brubaker for showing me this.
page 91, line 2: Should be $k \to \infty$.
page 94, line -3: Change the second "2" to "4".

CHAPTER 6

page 104: The first part of the proof is incorrect. To fix it, introduce the additional assumption that

$$\bigcap_{s>t} \mathcal{F}(s) = \mathcal{F}(t)$$

for all $t \geq 0$. Now replace lines -4 to -6 with

"Then the event

$$\{\tau < t\} = \bigcup_{t_i<t} \underbrace{\{\mathbf{X}(t_i) \in U\}}_{\in \mathcal{F}(t_i) \subseteq \mathcal{F}(t)}$$

belongs to $\mathcal{F}(t)$. Observe next that

$$\{\tau \leq t\} = \bigcap_n \{\tau < t + \tfrac{1}{n}\} \in \textstyle\bigcap_n \mathcal{F}(t+\tfrac{1}{n}) = \mathcal{F}(t)."$$

page 111, lines 2 and -6: Remove the "i" in the exponential terms

page 114, line -7: Change (19) to (17)
page 116, line 9: Change "$Lu = f$" to "$Mu = f$"

APPENDICES, INDEX, REFERENCES

Thanks to W. Borrelli, N. Brubaker, K. Fey, V.Liu, T. Vaidya and M. Wojnowicz for finding these mistakes.

Please let me know about any other errors you find, at evans @math.berkeley.edu.