

**Errata for “Partial Differential Equations”, AMS Press  
Second Edition  
by Lawrence C. Evans**

These errata correct mistakes present in the first printing of the second edition. The forthcoming second printing of the second edition will correct all these mistakes.

Last modified: May 5, 2015.

**CHAPTER 1**

**CHAPTER 2**

- page 19, line 13: Change to “ $(x, t) \in \mathbb{R}^n \times (0, \infty)$ ”.
- page 25, line 12: Delete the sentence “This corrects ... (9)”
- page 28, lines -9 and -11: Change to “C.5”
- page 31, line - 3: Delete the “C”
- page 32, lines 11-12: Delete “C” in three places
- page 40, line 6: Change the second “in” to “on” in formula (42)
- page 46, line 5: Change to “ $w, w' \rightarrow 0$  fast enough as  $r \rightarrow \infty$ ”
- page 48, line -10: Change “ $x^0$ ” to “0”
- page 51, line -9: Change to “nonhomogeneous”
- page 54, line 7: Should be “ $\psi = 0$  on  $\partial E(r) - (0, 0)$ ”
- page 76, line 6: Delete “for all  $r \in \mathbb{R}, t \geq 0.$  ”
- page 87, line 5: Should be “ $u(x/|x|^2)|x|^{2-n}$ ”.

**CHAPTER 3**

- page 107, line 6: Change to  $F_{x_j} F_{p_j}$
- page 119, line 13: Change  $q$  to  $\mathbf{v}(p, x)$
- page 120, line 13: Change  $q$  to  $v$
- page 146, line -13: Should be “(32).”
- page 162, Problem 6(b): Rewrite the problem as follows. Assume that  $u$  is the solution of the given PDE, and derive the representation formula  $u(x, t) = g(\mathbf{x}(0, x, t))J(0, x, t)$ .
- page 163, line 10: Should be “ $u_t + \operatorname{div} \mathbf{F}(u) = 0$ ”

**CHAPTER 4**

- page 186, line 11: Change to “ $w, w' \rightarrow 0$  fast enough as  $r \rightarrow \infty$ ”
- page 197, line 9: Should be “ $\tilde{u}(s, \omega) =$ ” in (30)
- page 203, line 2: Should be “ $\mathbb{R}_+ = (0, \infty)$ ”
- page 247, line -11: Delete “= 0”

**CHAPTER 5**

page 264, line 7: Change to “C.5”

page 265, line 5: Change to “C.5”

page 281, line 10: Add “dt” to second integral

page 283, line 10: Should be 5.8.3

page 284, line 5: Remove extra “-” in the exponent

page 289, line 6: Should be “C.8”

page 303, line 14: Change to “Extend  $\mathbf{u}$  by reflection and cutoff to the larger interval ..”

**CHAPTER 6**

page 352, line 11: Change to “where  $R_i$  denotes another remainder term such that  $|Dv||R_i|$  satisfies estimate (23).”

page 352, line -9: Sum should be for  $i, j, k, l = 1$  to  $n$

page 352, line -6: Should be

$$-\sum_{k,l=1}^n a^{kl} w_{x_k x_l} + \sum_{k=1}^n b^k w_{x_k} \leq -\theta^2 |D^2 v|^2 + C |Dv|^2.$$

page 366-367, Problem 7: Assume also  $c(u) \in L^2$  and rephrase the question to derive the estimate

$$\|D^2 u\|_{L^2} \leq C \|f\|_{L^2}.$$

**CHAPTER 7**

page 388, line -6: Delete “(53)”

page 407, line -6: Should be “ $B[\mathbf{v}(0), \mathbf{v}(0); 0]$ ”

page 417, line -8: Change “ $\partial C_t$ ” to “ $\partial K_t$ ”

page 421, line -4: Should be “ $B(x, t; y)$ ”.

page 424: Lower left entry in  $\mathbf{B}_0$  should be  $a^{n1}$

page 428, lines -2 and -4: Should be “ $\int_0^T -(\mathbf{u}, \mathbf{v}') \dots$ ”

page 430, lines -3 and 5. Change to 5.8.5

page 431, line 10: Should be  $\mathbf{B}(y)$

page 446, line -7: Change “ $u = 0$ ” to “ $v = 0$ ”

**CHAPTER 8**

page 477, line -8: Should be “C.8”

page 505, line 10: Change to “ $-|I'[\eta_t(u)]| \leq -\sigma \leq -\sigma^2$ ”

page 517, line 7: Change both  $(e^\tau x, e^\tau x)$  to  $(e^\tau x, e^\tau t)$

page 512, line 15: Should be  $w : \mathbb{R}^n \times \mathbb{R} \rightarrow \mathbb{R}$

page 519, line 5: Should be  $u^2$  in the divergence term

page 520, line 7: Add the term  $\frac{|x|^2+t^2}{2} \frac{(n-3)(n-1)u^2}{4|x|^2}$

page 520, line 11: In the integral (27), add the term  $\frac{(n-3)u^2}{|x|^2}$

page 520, line 16-17: Rewrite sentence to read "...nonnegative for  $n = 3$  and can be estimated by (27) if  $n > 3$ ."

page 524, Problem 17. Add "subject to the constraint that  $\int_U w^2 dx = 1$ "

### CHAPTER 9

page 549, line 2: Should be  $\lambda_1$

page 566, line -9: Change to "form"

page 567, line -10: Change " $\mathbf{u}$ " to " $\mathbf{u}_\lambda$ "

page 572, line 3: Should be  $D_p L$

page 573, line 9: Should be ; after  $(0, \infty)$

### CHAPTER 10

page 580, line 17: Should be "§C.8"

page 601, line 2: "q" should be "v"

page 604, lines -9 and -11: Should be

$$H(\lambda Du^- + (1 - \lambda)Du^+) \geq 0 \quad \text{if } u_\nu^- \leq u_\nu^+$$

and

$$H(\lambda Du^- + (1 - \lambda)Du^+) \leq 0 \quad \text{if } u_\nu^+ \leq u_\nu^-$$

for each  $0 \leq \lambda \leq 1$ , where  $Du^\pm$  denote the gradients along  $\Gamma$  from  $V^\pm$

page 606, lines -11 and -12: Change to " $F(D^2v(x_0), Dv(x_0), x_0)$ "

### CHAPTER 11

page 653, line -6: Change b to  $\beta$

page 657, line -11: Change to "Bressan"

page 657, add new line -8.5

"Section 11.2 See P. Lax (Comm Pure and Applied Math 10 (1957), 537–566)."

page 644, line 7: Change to " $u_r \in S_k(u_l)$ "

### CHAPTER 12

page 671, line 15: Change to "functions"

### APPENDICES, INDEX, REFERENCES

page 699, line 3: Should be " $|x - y| \leq r$ "

page 702, line -9: Delete the second  $C^{k,\beta}(\bar{U})$

page 735, line -9: Change to "Bressan"

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