Errata\(^1\)

p. 9, 8dn: Change “\(F \supseteq\)” to “\(F \subseteq\)”

p. 14, 10dn: Change “isometry” to “bijection”

p. 17, 7up: Change “any \(\alpha \in \mathbb{R}\)” to “any \(\alpha \in [0, \infty)\)”

p. 18, 4up: Change “\(C_R = 4R^3\)” to “\(C_R = 8R^3\)”

p. 21, 2up: Change “a subset” to “a \(k\)-element subset”

p. 23, 12up: Change “\(W_2(M - m) - W_2m = 0\)” to “\(W_2M - W_2m = 0\)”

p. 26, 14up: Replace “\(m\)” by “\(2m\)”

p. 28, eq. (1.2.29): Change “\(P(B)\)” to “\(\mathbb{P}(B)\)”

p. 32, 6dn: Change “(1.1.11)” to “(1.1.12)”

p. 33, 15up: Change “\(k \in \mathbb{Z}\)” to “\(k \in \mathbb{Z}^+\)”

p. 34, 2up: Change “\(\mathbb{P}_q(A) = \mathbb{P}_q\)” to “\(\mathbb{P}_q(A) = \mathbb{P}_p(A)\)”

p. 35, 12up: Change “Exercise 1.2.38” to “Exercise 1.2.40”

p. 35, 4up: Change “\(\alpha^m(1 - \frac{\alpha}{n})^{n-m}\)” to “\((1 - \frac{\alpha}{n})^{n-m}\)”

p. 38, 3dn: Change “\(\zeta \{1\}_k\)” to “\(\zeta \{1\}_{N-n}\)”

p. 38, 3 & 2up: Change “\(\rho(m-1)\)” to “\(\rho^{(m-1)}\)”

p. 39, 2up: Change “\(\sum_{r=1}^\infty\)” to “\(\sum_{r=1}^\infty\)”

p. 40, 2dn & 4dn: Change “\(1 - \sqrt{1 - \frac{4pqx}{2q}}\)” to “\(1 - \sqrt{1 - \frac{4pqx^2}{2qx}}\)”

p. 45, 11dn: Change “(1.1.6)” to “(1.1.5)”

p. 45, 13dn: Change “(1.1.5)” to “(1.1.6)”

p. 45, 15 & 16dn: Change “\(X \geq \alpha - \frac{1}{n}\)” to “\(X \leq \alpha - \frac{1}{n}\)”

\(^1\)Most of these errors were found by Peter Landweber, to whom I am deeply indebted.
p. 46, 5dn: Change “(1.4.3)” to “(1.4.7)”
p. 50, 2up: Change “any $h$” to “any non-zero $h$”
p. 52, 12dn: Change “[m, m + 1]” to “(m, m + 1)”
pp. 55 & 56, 1up & 3dn: Change “§ 1.1.1” to “§ 1.1.2”
p. 57, 10up: Change “$\mu(B) = \mu(B)$” to “$\mu(B) = \mu(A)$”
p. 57, 8up: Change “$\mu(A \setminus B)$” to “$\mu(B \setminus A)$”
p. 58, 16up: Change “$A \cup B = (A \cap B) \cup (B \setminus (A \cap B))$” to “$A \cup B = A \cup (B \setminus (A \cap B))$”
p. 60, 3up: Change “$m \geq 0$” to “$m \geq 1$”
p. 61, 3up: Change “$\sum_{A \in C}$” to “$\sum_{C \in C}$”
p. 64, 2dn: Change “let $\epsilon > 0$” to “let $F \in \mathcal{F}(\Omega)$ and $\epsilon > 0$”
p. 64, 10 & 11dn: Change “$\mathbb{P}(B)$” to “$\tilde{\mathbb{P}}(B)$”
p. 65, 10dn: Change “$n \geq 1$” to “$m \geq 1$”
p. 67, 11up: Change “$T^{[0,1]}_x : \mathbb{R}$” to “$T^{[0,1]}_x : \mathbb{R}$”
p. 69, 14up: Change “$\Gamma \in \mathcal{B}$” to “$\Gamma \in \mathcal{B}_R$”
p. 69, 3up: Change “Borel measure” to “Borel measure on”
p. 71, 7dn: Change “$\mathcal{B}_R$” to “$\mathcal{B}_R$”
p. 71, 15up: Change “$\lim_{s \nearrow u}$” to “$\lim_{v \nearrow u}$”
p. 72, 5dn: Change “(1.4.3)” to “(1.4.6)”
p. 72, 17up: Change display to
\[
\rho(\xi, \eta) = \frac{1}{\pi} \left| \int_{\xi}^{\eta} \frac{1}{1 + t^2} dt \right| = \frac{|\arctan \eta - \arctan \xi|}{\pi}
\]
p. 79, 3dn: Change “every” to “everywhere”
p. 80, 9 & 10dn: On line 9, replace “$x \notin A$” by “$x \notin A_i$,” and on line 10, replace “$j > 0$” by “$j \geq i$”
p. 82, 1dn: Replace “$\varphi_{1,n} \vee \cdots \vee \varphi_{n,n}$” by “$\varphi_{n,1} \vee \cdots \vee \varphi_{n,n}$”
p. 85, 1dn: Change “function $f$” to “function $g$”
p. 88, 15dn: Change “$(E_1 \times E_2)$” to “$(E_1 \times E_2, \mathcal{F}_1 \times \mathcal{F}_2)$”
p. 93, 5dn: Change “\(\mathbb{R}\)-valued functions” to “\(\mathbb{R}\)-valued \(\mu\)-integrable functions”

p. 93, 7–8dn: Change “show . . . with respect to \(\mu\)” to “show that \(\{\varphi_n : n \geq 1\} \) is uniformly integrable with respect to \(\mu\) if and only if \(\varphi\) and all the \(\varphi_n\)’s are \(\mu\)-integrable and \(\int |\varphi_n - \varphi| d\mu \to 0\)”

p. 93, 8up: Change “measures” to “measure”

p. 93, 7up: Change “\(\int g d\nu\)” to “\(\int f d\nu\)”

p. 93, 4up: Delete “unless \(\mu(E) < \infty\)”

p. 97, 6dn: Change “\(T_A \circ T_x = T_x \circ T_A\)” to “\(T_A \circ T_x = T_{Ax} \circ T_A\)”

p. 99, 10dn: Change “\(\int_{S_{N-1}} (\int_{S_{N-1}} \cdots \right)\)” to “\(\int_{S_{N-1}} (\int_{(0,\infty)} \cdots \right)\)”

p. 103, 5dn: Change “\((b_i^+ \land 1 - a_i^+\)” to “\((b_i^+ \land 1 - a_i^+ \land 1\)”

p. 103, 10dn: Change “[0, 1]^N” to “\(\mathbb{R}^N\)”

p. 103, 7up: Change “the unit ball” to “Lebesgue measure of the unit ball”

p. 104, 2dn: Change “\(dx\)” to “\(ds\)”

p. 108, 8up–6up: Change “isomorphism” to “bijection.” Also, the example of lexicographic ordering should be deleted because it does not give a bijection. However, it is well known that \(\mathbb{N} \times \mathbb{N}\) is countable and therefore in one-to-one correspondence with \(\mathbb{N}\).

p. 110, 8dn: Change “\(E^P[Y, A_m]P(A_m) = E^P[X, A_m]\)” to “\(Y(\omega)P(A_m) = E^P[X, A_m] \) for \(\omega \in A_m\)”

p. 110, 15up & 14up: Change “\(L^1(\mathbb{P}, \mathbb{R})\)” to “\(L^1(\mathbb{P}; \mathbb{R})\)” on 15up and “\(\Sigma\)-measurable” to “\(\Sigma\)-measurable” on 14up

p. 111, 7-12dn: Starting at “since”, change to “since \(X_m = E^P[X|B]\) on each \(B \in \mathcal{P}_m\),

\[
E^P[(X_n - X_m)X_m] = \sum_{B \in \mathcal{P}_m} (E^P[X_n, B] - E^P[X, B])E^P[X|B]
\]

\[
= \sum_{B \in \mathcal{P}_m} \left( \sum_{A \in \mathcal{P}_m, A \subseteq B} (E^P[X_n, A] - E^P[X, B]) \right)E^P[X|B]
\]

\[
= \sum_{B \in \mathcal{P}_m} \left( \sum_{A \in \mathcal{P}_m, A \subseteq B} (E^P[X, A] - E^P[X, B]) \right)E^P[X|B]
\]

\[
= \sum_{B \in \mathcal{P}_m} (E^P[X, B] - E^P[X, B])E^P[X|B] = 0."
\]
p. 112, 10dn: Change “\(\mathbb{E}^P[X|\Sigma]\)” to “\(X_{\Sigma}\)”

p. 112, 16dn: Change “bounded” to “bounded by \(C\)”

p. 114, 5dn: Change “a.e.” to “a.s”

p. 115, 2dn: Change “\(\mathbb{E}^P[X_p] \leq \mathbb{E}[X_p]^{1-\frac{1}{p}} \mathbb{E}^P[Y_p]^{\frac{1}{p}}\)” to “\(\mathbb{E}^P[X_p] \leq \frac{p}{p-1} \mathbb{E}[X_p]^{1-\frac{1}{p}} \mathbb{E}^P[Y_p]^{\frac{1}{p}}\)”

p. 115, 13dn: Change “\(\mathbb{P}(B_{k\ell,\ell})\)” to “\(\mathbb{P}(X \in B_{k\ell,\ell})\)”

p. 119, 1dn & p. 120, 2up: Change “Exercise 1.4.19” to “Exercise 1.4.20”

p. 121, 11 & 12dn: Change “\(f(\lambda)\)” to “\(f_p(\lambda)\)” once on each line.

p. 121, 12dn: Change “\(e^{\lambda p}\)” to “\(e^{-\lambda p}\)”

p. 121, 13dn: Change “\(a, b \geq 0\)” to “\(a, b > 0\)”

p. 122, 10dn: Change “\(\sum_{x \in \text{Image}(X)}\)” to “\(\sum_{y \in \text{Image}(Y)}\)”

p. 123, 6dn & 7dn: Change “if \([b+c,a+d]\)” to “if \(z \in [b+c,a+d]\)” on 6dn and “\([b+c,b+d]\)” to “\([a+d,b+d]\)” on 7dn

p. 124, 1up: Change “\(\sup_{n \geq 0}\)” to “\(\sup_{n \geq 1}\)”

p. 125, 1up: Change “\(n^{\frac{1}{2}}\)” to “\(n^{-\frac{1}{2}}\)” and “\(n^{-\frac{7}{2}}\)” to “\(n^{-\frac{7}{2}}\)”

p. 131, 8up: Change “every point” to “every point”

p. 132, 8dn: Change “\(2\|f\|_u\)” to “\(4\|f\|_u\)”

p. 132, 15dn: This integral can be defined either as a Riemann-Stieltjes integral or as \(\int_{[0,\infty)} f \, d\mu_F\) where \(\mu_F\) is the measure determined by \(F\) as in §2.3.3.

p. 132, 16dn: Change “\(F : \mathbb{R} \to [0,\infty)\)” to “\(F : [0,\infty) \to [0,\infty)\)”

p. 133, 10up: Change “\(n^{-\alpha}\)” to “\(n^{-\alpha^2}\)”

p. 134, 2dn: Change “\(|S_n|\)” to “\(S_n\)”

p. 134, 7up: Change “§3.2” to “§3.3”

p. 136, 6dn: Change “§3.2.2” to “§3.3.2”

p. 136, 1up: Change “\(\sum_{k=1}^{n}\)” to “\(\sum_{k=1}^{\ell}\)” twice

p. 138, 2dn: Change “\(\mathcal{F} \times \mathcal{F}_{\mathbb{R}^n}\)” to “\(\mathcal{F} \times \mathcal{B}_{\mathbb{R}^n}\)”

p. 138, 4dn: Change “\(T_n = \sum_{k=1}^{n} X_k\)” to “\(T_n = \sum_{k=1}^{n} Y_k\)”

p. 138, 10up: Replace “\(-\varphi''(\bar{U}_m + \xi)\)” by “\(-\varphi''(\bar{U}_m)\)”
p. 140, 5dn: Change “\(C_b(R; \mathbb{R})\)” to “\(C_b(\mathbb{R}; \mathbb{R})\)”

p. 142, 15up: Change “\(\sup_{x \in \mathbb{R}} (1 + |x|^2) \sup_{\varphi \in S} |\varphi(x)|\)” to “\(\sup_{x \in \mathbb{R}} (1 + |x|^2)^{-1} \sup_{\varphi \in S} |\varphi(x)|\)”

p. 142, 2up: Change “\(\bar{S}_n\)” to “\(S_n\)”

p. 145, 9dn: Change “as the” to “as”

p. 145, 2up: Change “\(\omega_{N-1}\)” to “\(\omega_{N-2}\)” in the factor before the final integral

p. 146, 14up: Change “the matrix” to “the”

p. 140, 14dn: Replace “\(\lambda\)” by \(\lambda^2\)

p. 149, 13up: Replace “\(\text{Var}(|X|) \leq \frac{\pi^2 \|C\|_{op}}{2}\)” by “\(\text{Var}(|X|) \leq \pi^2 \|C\|_{op}\)”

p. 150, 12 & 14dn: Replace “\(R \leq \frac{E^p[f(X)]}{2}\)” by “\(E^p[f(X)] \leq \frac{R}{2}\)” and “\(R \geq \frac{E^p[f(X)]}{2}\)” by “\(E^p[f(X)] \geq \frac{R}{2}\)”

p. 150, 1up: Change “\(\int\)” to “\(\int_{\Gamma}\)” in final expression

p. 152, 9dn: Change “= \(\mathbb{R}^N\)” to “= \(\mathbb{R}^M\)”

p. 152, 10dn: Following “\(\hat{X} = (X_1, \ldots, X_M)\)” add “where \(X_{N+1}, \ldots, X_M\) are mutually independent \(\mathcal{N}(0, 1)\) random variables that are independent of \(X = (X_1, \ldots, X_N)\)”

p. 152, 13dn: Change “\(e_1, \ldots, e_M \perp \text{Ker}(\Sigma)\)” to “\(e_1, \ldots, e_M\)” whose span contains \(\text{Ker}(\Sigma)^\perp\)”

p. 155, 16up: Change “\(6M^4\)” to “\(3M^4\)”

p. 156, 1up: Change “non-degenerate” to “non-singular”

p. 160, 2dn: Change to

\[
\rho^{(1)}(\omega) = \inf\{n \geq 1 : W_n(\omega) = 0\} \quad \text{and}\quad \rho^{(m+1)}(\omega) = \inf\{n > \rho^{(m)}(\omega) : W_n(\omega) = 0\} \quad \text{for} \quad m \geq 1.
\]

p. 160, 12up: Change “Exercise 3.1.19” to “Exercise 3.3.19”

p. 160, 5up: Change “\(\zeta^{(k)}\)” to “\(\zeta^{\{k\}}\)”

p. 160, 1up: Change “\((-4)n+1\)” to “\((-4)\overline{n+1}\)”

p. 161, 3dn: Change “\([0, \frac{1}{3}]\)” to “\((0, \frac{1}{3}]\)”

p. 161, 7dn: Change “0 \leq m \leq n” to “0 \leq m \leq n and \(k \geq 1\)”

p. 161, 7up: Change “\(p < \frac{1}{2}\)” to “\(p \leq \frac{1}{2}\)”

p. 162, 12 & 10up: Change “\(e^{\zeta^{(1)}}\)” to “\(e^{\lambda \zeta^{(1)}}\)” and “\(e^{\zeta^{(-1)}}\)” to “\(e^{\lambda \zeta^{(-1)}}\)”
p. 162, 12 & 10 up: Replaced “P” by “P_p”

p. 162, 10up: Change “ζ(1) < ∞” to “ζ(1) < ∞”

p. 163, 5dn: Change “(p ∧ q)^m−1” to “(2(p ∧ q))^m−1”

p. 163, 18up: Change “u_n−1(m + 1)” to “u_n−1(m)”

p. 165, 13up: Change “2_qe^2λ” to “2_qe^λ” in denominator

p. 168, 5up: Change “measure” to “measures”

p. 169, 7up: Change “P(X_1 ∈ Γ_1, ..., X_n ∈ Γ_n)” to “P(X_0 ∈ Γ_0, ..., X_n ∈ Γ_n)”

p. 172, 1dn & 8dn: Change “(p ∧ q)^m−1” to “(2(p ∧ q))^m−1”

p. 175, 2up: Change “that fact” to “the fact”

p. 177, 13up: Change “πA_n” to “πA_n ◦ A_M”

p. 180, 10dn: Change “∑_{k∈E}” to “∑_{k∈E}”

p. 181, 4dn: Change “E^m” to “E^{m+1}”

p. 182, 6up: Change “ρ^{(1)} = n” to “ρ^{(1)}(ω) = m”

p. 183, 4, 6, 7, 12dn & 7, 4up: Change “ρ_i^{(i)}” to “ρ_i^{(1)}”

p. 183, 6dn & 7, 4up: Change “E^{P_k}” to “E^{P_i}” several times

p. 184, 5dn: Change “∑_{m=0}^{∞}” to “∑_{n=0}^{∞}”

p. 188, 4up: Change “ρ_i^{(1)}” to “ρ_i^{(1)}”

p. 194, 16up: Change “P : [0, ∞) × E → [0, 1]” to “P : [0, ∞) × E × B → [0, 1]”

p. 196, 17up: Change “∑_{m=0}^{n}” to “∑_{m=1}^{n}”


p. 205, 17dn & p. 206, 9dn: Change “∑_{n=0}^{∞}” to “∑_{n=1}^{∞}”

p. 208, 1dn: Change “m + n/2 ≥ 0” to “(m + n/2) ∧ (m' + n'/2) ≥ 0”

p. 212, 3up: Change “(t_i^{−1} ∧ t_j^{−1})” to “(t_i^{−1} ∧ t_j^{−1})”

p. 219, 19up: Change “numbers of” to “number of”
p. 223, 5dn: Change “$e^{\alpha(t-\tau)}$” to “$e^{\alpha(\tau-t)}$”

p. 224, 8up: Change “Brownain” to “Brownian”

p. 225, 2dn: Change “[9]” to “[15]”

p. 249, 8up: Change “$n \geq 0$” to “$n \geq 1$”

p. 253, 9up: Part (ii) is misstated. It should be the statement that if $p \in \left(\frac{1}{2}, 1\right)$ and $\lambda_p = -\log(4pq)$, then $\lambda_p > 0$ and $\mathbb{E}^p[e^{\lambda_p \xi^{(k)}}] \leq \left(\frac{p}{q}\right)\frac{4}{1}$. 

p. 254, 2dn: Change “$\mathbb{E}^p[e^{-\lambda_p(\alpha)\xi^{(k)}}]$” to “$\mathbb{E}^p[e^{-\ell_p(\alpha)\xi^{(k)}}]$”

p. 254, 4dn: Change “$\frac{1-\sqrt{1-2pqe^{2\lambda}}}{2qe^{2\lambda}}$” to “$\frac{1-\sqrt{1-2pqe^{2\lambda}}}{2qe^{2\lambda}}$”

p. 255, 14up: Change “a Brownian motion” to “is a Brownian motion”

p. 265, 9dn: Change “martingale” to “martingales”

p. 266, 10–11dn: Change “exists” to “exits”

p. 270, 1up: Change “differential” to “differentiable”

p. 271, 19dn: Change “$\zeta(\omega) \leq t \implies \zeta(\omega) = \zeta(\omega^t)$” to “$\zeta(\omega) \leq t \iff \zeta(\omega) = \zeta(\omega^t) \leq t$”